Gleanings in Bee Culture

Established 1873

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April, 1939

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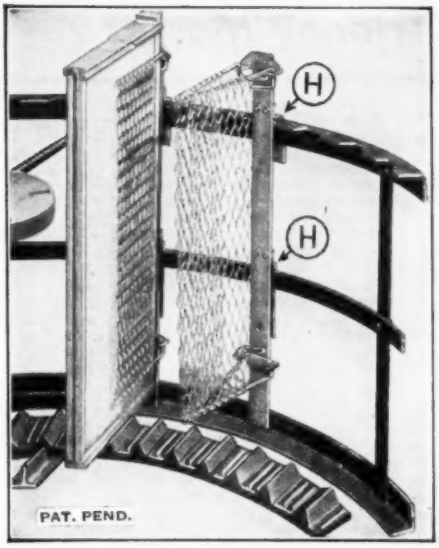

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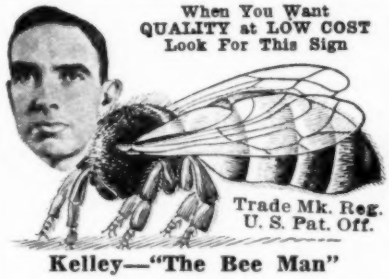

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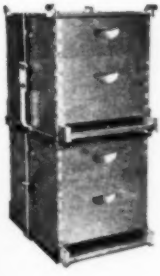

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The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of March).

California Points: Southern California—Some rainfall has occurred in practically all Southern California areas, which will materially aid plant growth, but generally the weather has been clear with temperatures about normal. Due to late rains and cool weather filaree, sage, and other flowers are backward in growth, and broodrearing has also been slow in many yards. However, where bees had access to cover crops, wild radish, etc., colonies are rather strong and have considerable brood. Some beekeepers question whether colonies generally will be in shape for the main flow, especially in the hill sections. Occasionally willows and dandelions are available to the bees as well as eucalyptus, mustard, manzanita, mountain mahogany and other blooms. The market has held about steady, with both domestic and foreign trading moderate. Sales in ton lots or more at Southern California points reported as follows: Orange, White to Extra White 4¼-4½c, some 4c per lb.; Sage-Buckwheat, Light Amber to Extra Light Amber $4.25-4.50, mostly $4.40 per case of 120 pounds, occasionally $4.60 per case; Light Amber Buckwheat 3¾c per lb. Beeswax has continued firm at mostly 17-18c per lb. delivered Los Angeles.

Imperial Valley—Temperatures have recently been exceptionally low and bees have been less active than usual at this season. Sales reported, Light Amber to Extra Light Amber Alfalfa $4.10-4.15 per case of 120 pounds at country points, some $4.25 per case f.o.b. cars, other lots sold $4.30-4.40 per case delivered Los Angeles; large lot sales of several cars 1937 crop Alfalfa reported at 3¾-3⅞c per lb., f.o.b. Imperial Valley points.

Central California—Rainfall has been general over Central California and plant growth, which was badly in need of moisture, is now reported progressing more normally. Orange bloom will be late and wild flowers are also somewhat retarded. Bees are working on manzanita, balm of Gilead, eucalyptus, willows, almonds, apricots, and various weeds. Colonies are generally in fairly good condition and in favorable locations are almost at swarming strength. The market has been fairly steady, with a light movement of honey from beekeepers to local wholesale dealers. Light Amber to Extra Light Amber grades of honey appear to be in liberal supply, with beekeepers generally offering stocks freely. Some local buyers report that supplies of White to Water White Orange and Clover honey are rather light. Sales by beekeepers at Central California delivery points in ton lots or more: Light Amber to Extra Light Amber Mixed Flowers 3¼-3½c per lb.; Light Amber to Extra Light Amber Blue Curl 3½-4c, some 4¼c per lb.; sales delivered Los Angeles: San Joaquin Valley Light Amber to Extra Light Amber Mixed Flowers $4.20 4.25 per case of 120 pounds.

Northern California—Beekeepers welcome the fairly heavy rains that have fallen recently over Northern California as plant growth in many areas was suffering from lack of moisture. Broodrearing has started and bees now have several frames of brood. Many colonies have been located in almond orchards for pollination but it will soon be time to move them out. Bees have also been working on alfilaria, dandelions, willow and mustard. Thistle growth has been normal, but filaree and burr clover have been somewhat backward. The honey market has continued dull, with wholesale dealers well supplied. Top grades of Thistle honey reported in rather light supply, with liberal offerings of darker grades. Market generally steady to slightly weaker. Sales by beekeepers in ton lots or more at Northern California delivery points reported per lb. as follows: Thistle, Extra Light Amber to White 4½-4¾c, Light Amber to Extra Light Amber 4-4¼c, some 3½c; Light Amber to Extra Light Amber Mixed Flowers 3¼-3½c.

Light buying of beeswax reported, with the market holding about steady at 16-17c per lb. for yellow wax of good quality, and 14-15c per lb. for wax of fair quality at Central and Northern California delivery points.

Pacific Northwest: West of Cascades—Temperatures have been moderate to cold with average rainfall, and honey plants have made little progress. During the short flights possible bees have worked on dandelion, mustard, willows and filberts, and maple bloom is almost out. The season is late and plant growth somewhat backward, but vetch looks the best in years. Most colonies have considerable brood, but some feeding is necessary in many yards. The market for honey has been dull with White Fireweed sold at shipping points at 4-6c per lb., and sales reported at 5-6c per lb. delivered Portland, mostly 5-5½c per lb. Sales of Light Amber Clover-Mixed Flowers in small pails reported at 6½-7c per lb. Considerable honey has been brought in from California at prices below those prevailing for local honey.

East of Cascades—Cold weather has made it difficult for bees to fly and has held back the development of nectar-bearing plants. Precipitation has been below normal since September but as beekeepers depend on irrigated crops, for which there is plenty of water, the lack of moisture does not disturb them. When weather is good bees work on soft maples and willows. The market is dull and weak, with White to Water White Sweet clover-Alfalfa selling at 4-5c per lb. for large lots.

Intermountain Region—Large lot sales of honey are scarce, with inquiries from large buyers much below normal. The sale of honey in small lots is variable, depending to a considerable extent upon the activity of the beekeeper in pushing sales.

SUMMARY—Temperatures have varied widely during this period, with the western part of the country ranging from cold to warm, and the East, and especially the Northeast, shifting from warm to cold, during the two weeks. Snowfall was heavy in the Northeast, in the upper Central States, and in the Central Plains, but elsewhere was generally light. Although the winter has averaged warmer than normal over most of the country, the fact that cold weather came toward the close in many areas has delayed the development of nectar-bearing plants, and toward the end has retarded brood-rearing. In spite of the greater-than-normal activity of the bees it does not yet appear that winter losses will be heavy in general, but it is too early to comment definitely on this point. Many beekeepers feel that it will be necessary, however, to feed their colonies early in order to carry

them along until early nectar plants are available. Cellar wintered bees appear to be coming through the winter in good shape. Although orders for package bees and queens are being received in good numbers by some southern breeders, price-cutting to secure orders appears to be rather widespread. Interest by northern beekeepers in package bees, and to a less extent interest in queens, has been adversely affected by the continuing low prices of honey.

The wholesale demand for honey shows few signs of improvement except in portions of the Clover Belt, but sales by beekeepers in small containers direct to storekeepers and to individual customers have in many areas continued to be more widespread than those of a year ago. Many carlot producers have found it not only possible but profitable to dispose of their entire crop by packing it in small containers and selling it to nearby towns. The present stocks of honey are larger than was thought likely a few months ago. For most of the country, however, several months still remain before new crop honey will be available. The extent of the carry-over of extracted honey into the new season will depend considerably upon the activity of beekeepers during the intervening period in endeavoring to personally dispose of their honey, usually in small containers. It appears from correspondence received from many parts of the country that too many beekeepers are still waiting for inquiries from buyers rather than personally endeavoring to sell their honey. Market prices in some cases have strengthened slightly, but in other areas have continued to sag. Beeswax continues to weaken slightly.

Monthly Report of Honey Producers

Early in March we sent the following questions to honey producers: 1. Do you now expect the remainder of the 1938 honey crop to be cleaned up before any of the 1939 crop is ready for market? If any will be held over, what per cent of the crop do you think it will be? 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) Extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the present condition of the honey plants for next season in your locality as compared with the average? Give answer in per cent. 7. What is the present condition of the colonies, as compared with normal, considering the number and age of the bees and the supply of stores? Give answer in per cent. 8. What is the per cent of winter loss to date (if any) in your locality?

State	Name	1938 carry-over.	Large lots. Ex.	Large lots. Comb.	To grocers. Ex.	To grocers. Comb	To consumers. Ex.	To consumers. Comb.	Move-ment.	Cond. honey plants.	Cond. of colo.	Pct. winter loss
S-Ala.	(J. C. Dickman)				.30		.40		Fair	80	100	5
B. C.	(A. W. Finlay)		.08½		.55		.75		Slow	100	100	
S-Cal.	(L. L. Andrews)		.03¾				.54	.16	Fair	75	75	11
SE-Colo.	(Otis E. Adcock)	30			.40		.50		Slow	80	80	2
E-Conn.	(Allen Latham)	25			.75		1.00		Fair	100	90	0
C-Fla.	(Harry Hewitt)	15			.50		.65		Rapid	100	100	2
S-Fla.	(C. C. Cook)	40	.04		.35		.49		Slow	90	100	5
SE-Ga.	(J. J. Wilder)	5	.05½		.50		.65		Fair	60	75	10
NC-Ills.	(A. L. Kildow)	0	.05	2.40	.40	2.50	.60	.13	Slow	100	95	0
S-Ills.	(Carl E. Killion)	25	.05⅜		.40	2.80	.61	.16	Fair	100	100	
NC-Ind.	(T. C. Johnson)	25			.50	3.00	.60	.17	Slow	100	100	
NW-Ind.	(E. S. Miller)	25			.50	3.00	.65	.15	Fair	100	100	
W-Iowa	(E. G. Brown)		.04½		.45		.55		Fair	100	100	
S-La.	(E. C. Davis)		.05		.35		.50		Fair	100	100	5
N-Me.	(O. B. Griffin)	0				4.80		.28	Slow	100	90	
C-Md.	(S. G. Crocker)				.60	4.00	.75	.25	Slow	90	100	5
E-Mich.	(L. S. Griggs)	0	.05		.40		.50	.17	Fair	100	100	
S-Mich.	(Floyd Markham)	25	.06⅔		.50		.75	.20	Slow	100	100	0
C-Mich.	(E. D. Townsend)	20	.05½						Slow			
E-Minn.	(M. W. Cousineau)	15	.05		.40		.55				10	10
E-Minn.	(Floyd W. Ray)	10	.05	3.00	.40	3.50	.49	.19	Slow	100	100	
C-Nebr.	(J. H. Wagner)		.06½	3.50	.54	4.00	.49	.20	Slow	60	70	2
W-Nev.	(Mrs. E. G. Norton)									50	50	4
W-Nev.	(Geo. G. Schweis)		.04½				.50	.17	Slow	75	100	
W-N. M.	(C. A. Baltzley)				.45		.63	.25	Fair	100	70	20
W-N. Y.	(Adams & Myers)				.40	3.50	.65	.20	Slow	100	100	0
NW-N. Y.	(Geo. B. Howe)				.40	3.50	.60	.25	Fair	90	95	
C-N. Y.	(F. W. Lesser)		.06½	3.50	.45		.60		Fair	100	100	2
NW-N. C.	(C. S. Baumgarner)	0			.75		.85				90	
C-Ohio	(R. D. Hiatt)	33⅓	.05½	2.35	.45	3.50	.65	.19	Slow	100	125	
NC-Okla.	(C. F. Stiles)	0			.45		.63		Fair	80	85	
W-Ore.	(H. A. Scullen)	25			.35		.48		Slow	100	100	0
C-Penn.	(Harry Beaver)				.50		.60		Slow	100	90	
SE-Penn.	(D. C. Gilham)	35			.70	4.00	1.00	.25	Slow	100	95	5
SE-S. D.	(J. F. Norgren)	0			.42		.55	.13	Fair	85	100	
E-Tenn.	(W. L. Walling)	0					1.00		Fair	100	100	0
C.Tenn.	(J. M. Buchanan)	0					.75	.20	Slow	95	100	0
S-Texas	(J. N. Mayes)	0	.05				.40		Rapid	100	75	15
S-Texas	(H. B. Parks)	5	.05		.48		.55		Slow	80	90	2
N-Utah	(.W. H. Hendricks)				.40		.52		Slow	100	90	10
W-Vt.	(Phillip Crane)			3.87	.72	4.25	.90	.28	Slow	95		
S-Va.	(T. C. Asher)	0			.50	4.00	.70	.20	Fair	95	95	4
N-W. Va.	(W. C. Griffith)	0			.35	3.40	.50	.19	Slow	100	100	0
SC-Wash.	(Chas. Higgins)	5	.06				.49		Fair	90	100	
SE-Wisc.	(N. E. France)						.55	.15	Slow	100	100	

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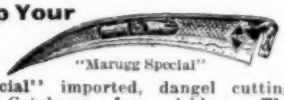

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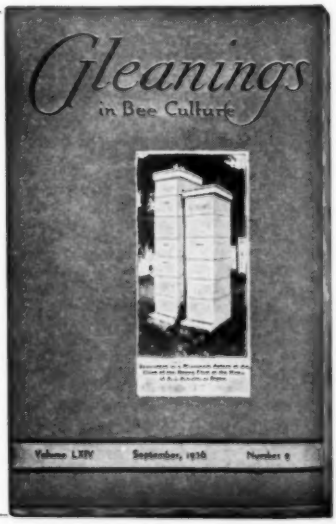

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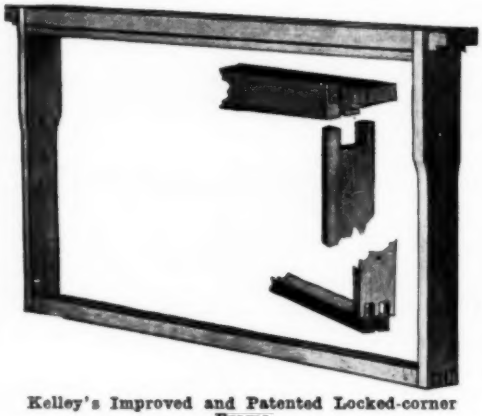

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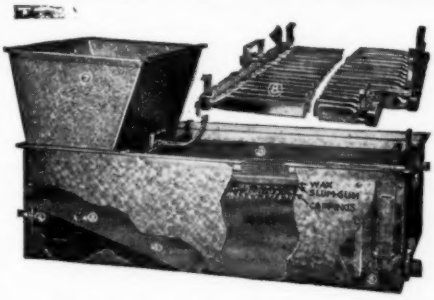

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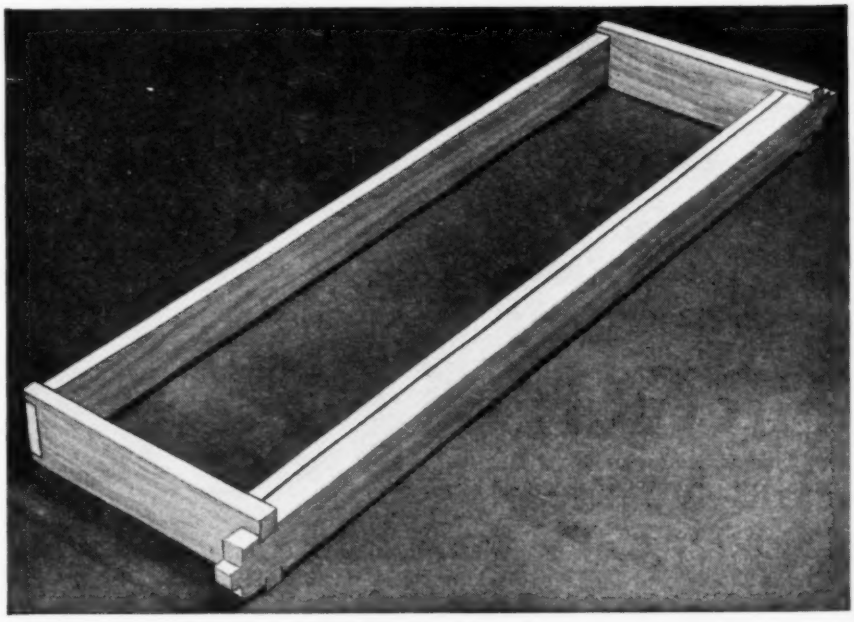

This new frame has proved ideal for bulk comb or cut comb honey production. Its shape tends to cause the bees to fill the comb as thick at the bottom bar as at the top, so when "hunks" of honey are cut out, they are all the same thickness. Used with Dadant's bulk comb foundation you get beautiful combs with a minimum of midrib. The heavy topbar does not sag and the clear pine throughout makes an ideal frame. Easily assembled into a rigid setup, the heavy wedge aids insertion of foundation. Carried in stock at Watertown and Lynchburg. Write for prices or send 10c for postpaid sample.

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STANDARD OF THE BEEKEEPING WORLD

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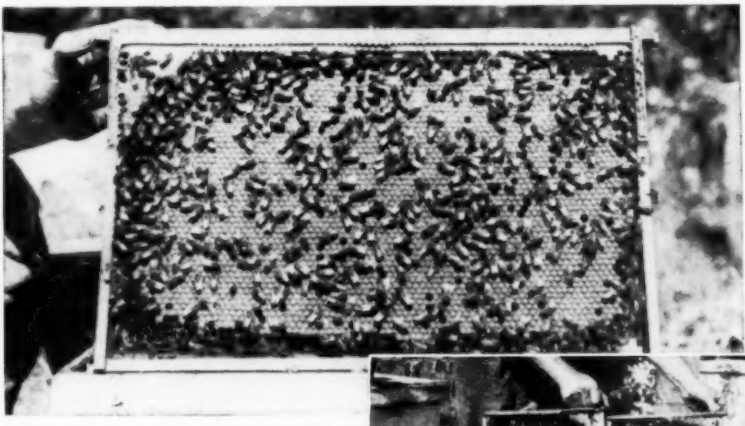
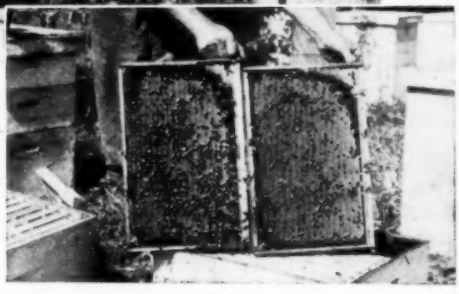


BROOD

And we mean BROOD



For Brood Means Bees And Bees Mean Honey For Years and Years

"Dadant's Crimp-wired Foundation is a real investment and the man who uses a common, cheaper kind, pays more for it in the penalty of poor combs than several times the difference in the cost of the foundation. If I were privileged to give the best advice I know of to the beekeepers of the country, I would tell them to use Dadant's Crimp-wired Foundation in all their brood frames."

George J. Brown
Fresno, California

Thanks, Mr. Brown, we could not have said it that well ourselves. When you get combs like these three, with brood from side to side and from top to bottom, they turn out thousands of bees to make record crops in your supers. The slight extra cost of Dadant's Crimp-wired Foundation is lost in profit after profit; in large colonies, in heavy supers, in combs that serve you long after less substantial ones are gone or replaced. You too will find, like many others, that Dadant's Crimp-wired Foundation makes combs that do so much and cost so little.

When You Plan Your Foundation Buying
Consider What this Means to You.

Dadant & Sons, Hamilton, Ills.

Makers of Famous Foundations

Crimp-wired
Plain Surplus

Vol. 67
No. 4

Gleanings in Bee Culture

April
1939

Pacific States Bee Culture Field Laboratory

E. R. Root

What Uncle Sam and the State of California are Doing to Solve the Problems of Beekeepers

We have already told something of the work that the Government Bee Culture Laboratories have been doing at Beltsville, Md.; Baton Rouge, La., and again at Laramie, Wyoming. See Gleanings, respectively pages 599, 1937; 337 and 409, for the same year, and again pages 457 and 531 for 1936. A reference to these pages will show that some of the best scientific work has been done for the advancement of bee culture at these stations. Not less important has been the work done at the Pacific States Laboratories at Davis, California. These various stations comprise a staff of some 30 experts all under their chief, Jas. I. Hambleton, with headquarters at Beltsville, Md.

The previous work at Washington, D. C., by Phillips and his staff, plus the work at the stations just enumerated, have done a vast deal of good in helping to clear up and solve some of the serious problems that confront bee culture.

A new station has been opened up at Madison, Wis., with C. L. Farrar in charge, lately of Laramie.

After several interviews and some correspondence with Dr. Todd we are able to present a summary of the work and the workers at Davis.

Established —March 1, 1931.

Maintenance —At Davis, California, in cooperation with the University of California.

Areas covered—Arizona, California, Nevada, Oregon, Washington.

Personnel —E. L. Sechrist, Asso. Apiculturist, in charge 1931-33 (retired)
Frank E. Todd, Apiculturist, in charge 1933-
Geo. H. Vansell, Asso. Apiculturist.

—Part time employees since establishment of laboratory:
Ruth Watson, Jr. clerk typist
Wm. G. Watkins, Field Assistant
Lawrence F. Hosbrook, Field Assistant
Harry J. Whitcomb, Assistant Field Aide
Vincent R. Huarte, Junior chemist and agent
Everett J. McNay, Field Aide
Ormond Bretherick, Sr. Scientific Aide.

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Most of the station's activities have been carried on cooperatively with State agencies and beekeepers. This has permitted a more efficient use of funds, most of which have been expended in active work. Use has been made of established laboratories and equipment.

Cooperating agencies are as follows:

Name	Institution	Project
Dr. E. C. Voorhies	University of California, Giannini Foundation	Economics of beekeeping
Mr. J. K. Galbraith	University of California, Giannini Foundation	Economics of beekeeping
Prof. R. L. Adams	University of California, Farm Management Division	Economics of beekeeping
Mr. A. S. Burrier	Oregon Agricultural College, Farm Management Division	Economics of beekeeping
Dr. H. A. Scullen	Oregon Agricultural College, Entomology Division	Economics of beekeeping
Dr. C. S. Bisson	University of California Chemistry Division	Beeswax
Mr. Walter Dye	University of California Chemistry Division	Beeswax
Geo. J. Schweis	State Entomologist, Nevada	Poison plant
Dr. Tracy I. Storer	University of California Zoology Division	Bear fence
Mr. Ben D. Moses	University of California Agricultural Engineering Division	Bear fence

Beekeepers who have cooperated:

Name	Address	Project
Roy K. Bishop	Orange, California	Pollen studies
J. Crawford	Orange, California	Pollen studies
Leroy Bell	Orange, California	Pollen studies
Roy Bunger	Temecula, California	Pollen studies
Walter Callison	Dinuba, California	Pollen studies
T. L. Nicolaysen	Salida, California	Pollen studies
C. G. Wenner	Glenn, California	Bear fence and pollen studies
A. M. Hengy	Oroville, California	Pollen studies
J. E. Wing	Cottonwood, California	Bear fence.

In addition to these, no less than 500 beekeepers in California, Oregon, and Nevada have assisted with various projects.

Results of The Work

Pollination Studies (Vansell):

From the standpoint of bees, this work has shown that faulty pollination may be due to weak colonies, lack of attractiveness of the blossoms of certain varieties, competition in the attractiveness to bees with other blossoms in the vicinity, and insufficient bees in a locality. Studies were made on almonds, apples, cherries, pears, plums, prunes, clovers, and vetches, which showed that varieties within a species vary widely in their attractiveness to bees, apparently due to variation in the concentration of sugars in their nectars. Bees appear to select blossoms having nectars of higher sugar content. Other blossoms in a locality with higher sugar concentrations may be more attractive to bees than the fruit blossoms, thus affecting the pollination of the fruit.

Nectar Concentrations (Vansell):

Much remains to be found out about nectar and its secretion; however, one attribute of nectar (concentration of sugar) has been studied. This work has shown that bees shift their activities from blossoms of low concentrations to those with higher sugar concentrations, even within the course of a day.

Humidity has an influence on the concentration of nectars. Dr. H. A. Scullen showed that in Oregon sugar concentration in the fully exposed fireweed nectar varied from 13 percent to 66 percent, as the relative humidity changed during the day (8-3-37) from 79 to 29. At Davis, California, apricot nectar sugar increased from 4 percent to 24.7 percent as the water was evaporated during a day (3-9-33), with a southwest wind following a calm dewy morning. The evaporation rate

1. Frank E. Todd, Apiculturist in charge.
2. Geo. H. Vansell, Associate Apiculturist—Mr. Vansell has ably served California beekeepers for many years—a friend of all.
3. The refractometer, in Mr. Vansell's hands, tells the story of nectar concentration.
4 Everett J. McNay, Field Aide—Master photographer and master of artificial insemination of queens.
5. Dr. C. S. Bisson—Head of Chemistry Division, University of California at Davis. Cooperates with keen interest in beeswax and pollen.
6. Ormond Bretherick, Agent—Chemical analysis of pollen is his work.
7. This truck is familiar to Pacific Coast beekeepers.
8. Manzanita bloom—Mountain beekeeping has been studied by the Laboratory.
9. Wm. G. Watkins identifies loco weeds from his collection of pods.
10. In the Laboratory's shop, experimental equipment is prepared.

seemed to be as significant in varying nectar concentrations as the relative humidity. The increase in work requirement by the bee to gather nectar to make honey between the low and high percentage nectars must be an important item in the honey crop.

The nectars so far tested indicate that the average sugar content is about 25 percent to 30 percent. However, some nectars run as high as 70 percent, and others as low as 3 percent sugar. If the average concentration is 30 percent bees would have to handle 266 pounds of nectar in the production of 100 pounds of honey. The wide variation in nectar sugar concentrations found between varieties of fruit suggest that like differences may also be found in our major honey plants. A selection of plants in our fields of clovers, alfalfa, etc., that produce nectars of greater quantity and richer quality offers an opportunity for vast improvement of beekeeping.

Future work at the laboratory is being directed towards the study of color sources, physical and chemical properties, and the phenomena of nectar secretion as well as factors causing variation in the quantity and quality of the secretion.

Poison Plants (Vansell):

Several species of plants have been found to have a deleterious effect on bees. These include certain

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species of loco weeds and veratrum which, at times, kill the adult bees in great numbers, and California buckeye which very seriously affects the brood and possibly the queen. Much good beekeeping range is unavailable because of the wide distribution of the latter. In the case of buckeye there appears to be a racial difference, Italian and Caucasian bees being seriously affected, Carniolans and German bees less so.

Oregon Honey Plants (Scullen and Vansell):

During the past three years, in cooperation with the Oregon Experiment Station, studies have been made of the honey flora of that state. One of the important factors in some regions is the lack of pollen plants, particularly in the late summer and fall. The fireweed region in mountainous northeastern Oregon and the vetch area in the Willamette Valley both appear to be deficient in this respect. Also in eastern Oregon, outside of where rabbit brush and sagebrush are locally abundant, spots may be short of pollen. Alfalfa, which is an outstanding shy pollen source, is perhaps the main source of honey there. This plant is even an erratic source of nectar from season to season. The reasons for the failure of alfalfa to secrete nectar are not known; a field may be purple with blossoms yet honeybees are unable to make appreciable gains from it.

The work has shown that many minor plants enter into the productivity of the colonies. When some of the major sources fail the minor ones become the most attractive to bees. However, on account of the limited quantity of sugar in such sources and the lack of sufficient acreage the crop is disappointing. To illustrate this point, the sugar concentration of **Cleome lutea** was 11.8 percent, while white sweet clover, alfalfa, and yellow sweet clover concentrations were 35.8 percent, 41.1 percent, and 51.6 percent respectively. In the same way when fireweed, with a sugar concentration of 41.6 percent, fails, scrophularia or figwort, with a value of 19.9 percent, becomes the major plant source.

A survey of Oregon nectar and pollen sources has been completed, and a publication is in preparation.

Bear Fences (Vansell):

Beekeepers using the mountain areas suffered considerable loss due to the depredations of bears, but work done in cooperation with the Engineering and Zoology Divisions of the University of California show that an economical electric fence could be built which would keep out the bears. The fence is operated with a 6-volt battery, with an interrupter switch. It is highly important under dry conditions to have a wire netting surrounding the fence, insuring a good ground contact.

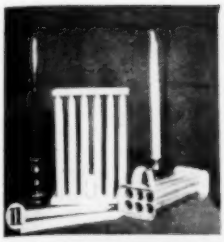
Beeswax (Vansell):

Sixty samples of western beeswax were analyzed by the Chemistry Division of the University of California in cooperation with Vansell. It was found that pure beeswax is a uniform product of white color, but that contaminations which take place in apiary practice result in the variation of colors and chemical and physical factors of beeswax. The yellow colors come from pollens; the brown and black colors from iron stain in the course of wax rendering; the variations in the acid number are due to propolis. When rendering in glass containers, they have yet to find a wax which is not either white or yellow. Rendering vessels of stainless steel, nickel, and aluminum, gave like results. Propolis contaminations were found to be especially serious and difficult to eliminate.

Economic Studies (Todd):

In cooperation with the Giannini Foundation, University of California, a study was made of the economic aspects of the bee industry and California honey markets. These studies present a comprehensive picture of the bee industry in the United States, covering apiary products from production through the retail market. The study shows the distribution and development of beekeeping in the United States, movements of honey, wax, queens, and package bees in foreign and domestic commerce, price series of honey and wax, and factors which affect them. From these studies the beekeeper can gain a broad view of his industry.

Individual bee enterprises have also been studied. Production cost data were obtained from 225 California beekeepers, and (in cooperation with the Oregon Experiment Station) 100 Oregon beekeepers. The studies show the average production costs to be between 6 and 7 cents per pound of honey. The main factors affecting costs were yields, economical use of labor and transportation, balanced



11. A study in beeswax.
12. In pollen reserve work, portable scales are used to weigh colonies and their parts. By this means, the number of bees in a colony is determined.
13. Brood photos are made through a grid.
14. The mirror throws the brood photo up through the glass top, where the number of sealed cells in each square inch is recorded on paper.
15. Electric fence with hotshot battery, fence unit, and wire netting ground has answered the bear problem.
16. Bears visit the mountain apiary.
17. The pollen trap furnishes samples which are sorted as to plant source for chemical analyses and feeding.
18. Bears destroy hundreds of colonies every year.

investment and judicious care of equipment. Beekeepers giving attention to these items were able to produce honey for as low as 4c per pound. Honey production was found to be characterized by comparatively low cash costs (2.3c per pound of honey). The major items in production costs were such reducible factors as labor (2.9c) and transportation (1.4c per pound of honey). During the time of the study (1931-1933, with very low honey prices) the data show that about 10 percent of the beekeepers were making a profit, 10 percent were breaking even, and 80 percent operated at a loss. The bright side of the picture was that some beekeepers in every locality were operating at a profit, indicating that much improvement is possible.

Pollen Reserves (Todd):

The survey of fall pollen reserves in commercial apiaries, in seven beekeeping regions on the Pacific Coast, showed that the fall pollen reserves varied greatly with the region. The average reserves ranged from about 50 square inches in the California orange belt and the fireweed area of Oregon to about 700 square inches in certain parts of eastern Oregon. The pollen reserves in the other areas were between these extremes. Experiments were set up to test the value of higher fall pollen reserves in four of the areas. The work showed that in areas lacking good fall pollen sources, the spring development of colonies was very much retarded. When the fall reserves

(Continued on page 261)

XUM

Carl E. Killion

Production of Comb Honey

Carl E. Killion
Chief Apiary Inspector of Illinois

Some Observations on Comb Honey, also Description of Equipment Used

[This is the first of a series of articles by Carl E. Killion, Paris, Ill. Mr. Killion is a Hoosier by birth and became interested in bees when about ten years of age. For a number of years he specialized in comb honey production working with the well-known comb honey producer, Chas. A. Kruse of Paris, Ill. On May 21, 1938, Mr. Killion was appointed chief apiary inspector of Illinois after having served one year as a deputy inspector.—Editor.]

Is section comb honey to be removed from our American markets? This is a question one frequently hears at meetings and is also asked by some of the buyers. Here is my answer—as long as the earth stands and honey is produced, **people will demand and eat fine quality section comb honey.** However, the section comb producers must first "stand at attention"; not only the producers, but the honey buyers and bee supply manufacturers as well. To begin with, the buyer should demand a fancy section, the producer produce a fancy section, and the supply house construct equipment for producing a fancy section.

The very first consideration in the successful production of fine comb honey is the individual behind the hive. Upon these shoulders rests the responsibility of success or failure. Too often we find people engaged in comb honey production who really should be engaged in some other work. This may be a cruel remark to make, but no truer one was ever made. Comb honey has been termed **a business of exacting details.** To succeed, one must carry out these details, small as they appear. The writer wishes to state here that he does not wish to claim all success or perfection, but what small success he has achieved, has been from adhering to details. Too many wish to place comb honey on a mass production basis, instead of quality production.

Comb Honey a Work of Art

Fancy section comb honey is in reality a work of art. To the bees it will always remain in the fine arts. A glance at the poor quality "stuff" one finds on the market, shows that a New Deal is needed in producing it. Some beekeepers have the erroneous idea that getting a large number of light weight sections is best. Experience has proved to the writer that larger profits are made from a fewer number of fancy sections. Even at the same price per case, fancy honey is still more profitable. One has a talking point in selling any fancy grade article, whether comb honey or apples; also, one can always sell to this buyer again.

The man behind the hive should and must be able to meet comb honey problems face to face, especially swarming. It has been said that **swarming is the nightmare of the comb honey producer.** We do hear from time to time of some comb honey producers "that never let their bees swarm". After twenty years of searching, I have concluded that "there ain't no such animule". Swarming, though, must be controlled. We cannot humor, pamper, or pet swarm control. With extracted honey, swarming is much easier to handle.

It is easy to hire help in extracted honey, but it is almost impossible to find any one to help with section comb honey. Aside from the necessary careful scraping and handling,

section comb honey must go to market **as it is.** In other words, very little can be done to improve its looks after it is removed from the hive. Therefore, let me say emphatically that **fancy section comb honey has to be made fancy while on the hive.** We cannot take a super of culls and one that is fancy, mix them up thoroughly, and presto! have a number one grade section. With extracted it is different. The water white can be kept separate from a white and light amber. Along comes a buyer who wants a color between the two; the above honeys can be blended until they are just as he wants it.

A few years ago the writer was criticized severely when he expressed caution in the use of the cellophane wrapper for comb honey. The fears expressed in my article at that time were 100% correct. The cellophane wrapper is by far one of the finest ways of displaying some of our finest foods, and a beautiful section in cellophane, away from flies, dust and stray fingers, is a package of merit. But to see cull and off-grade honey wrapped in order to hide the defects, is very disgusting and that is exactly what is happening all over the whole country. The cellophane wrapper, I am positive, was not intended to be used in this manner. It was to be used in displaying the finest food package in the world, a beautiful well-filled section of comb honey.

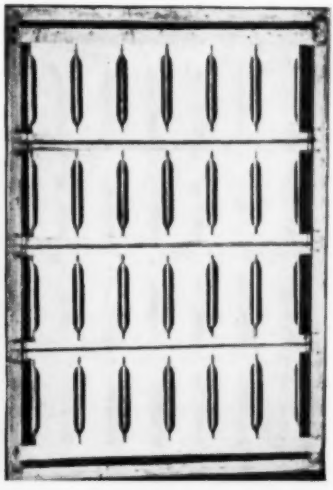
Equipment Used

Much has been written and more will be written about comb honey equipment. Although the writer does not use much equipment just as it comes from the factory, I do not wish to convey any idea that I recommend homemade equipment. The average beekeeper, and especially beginners, have no business in attempting to make their equipment. It takes expensive wood-working machinery and someone to operate this machinery. Power saws, jointers, and planers are dangerous to handle even with the best of skilled labor. Then, to carry out the details of hive construction is even more exacting.

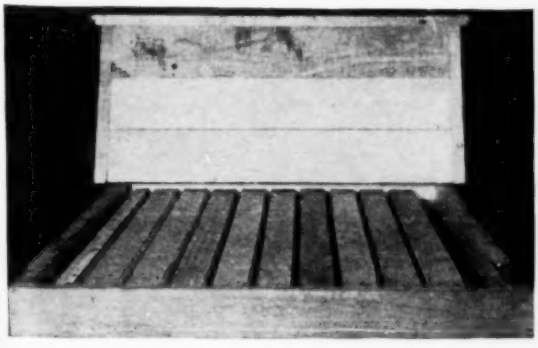
In these articles when the writer describes any certain part of equipment used and it is not as we would call standard, it is not intended for anyone to use other than standard goods. But, if there are any readers that are interested in this special type of equipment, remember that to have this made special for you by your supply dealer will be more expensive. Resetting of machinery for any special order requires time and skill. Since it requires more skill to manufacture comb honey equipment, the parts must be exact. Therefore, comb honey does not lend itself to poorly constructed equipment or the "let-alone" beekeeper and his slipshod methods.

Several times I have been asked —were I to start over again, what size or style of hive would I use? My answer would no doubt be in favor of the ten-frame size body, Langstroth depth, although the eight-frame has some advantages not found in the ten-frame size. Two of the world's best comb-honey pro-

Right: Bottom of super showing the T tins resting on special staples, also the flat tins at the ends.



Below: Dummy or follower removed, leaving plenty of room for handling of frames.



ducers used and recommended the eight-frame size—the late Dr. C. C. Miller and our present Chas. A. Kruse. My reason for using the ten-frame size, is because my investments were made in that size equipment. After the years of using this size and learning its faults and favors, there is no desire now to change.

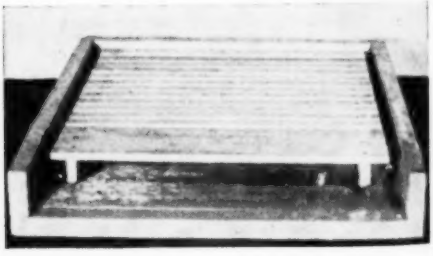
The mere mention of this rejuvenated equipment may not impress anyone. In fact, some may even ask what kind of a freak it is. And why not? Although I state a ten-frame body is used, it contains only nine frames. A dummy board or follower is used on each side. These frames are all nail spaced, instead of having used a Hoffman or other type spacer. Instead of a ten-frame size super, an eight size is used, a super that does not have section holders, but is called the Kruse Air-way T Super which in other words is an air-conditioned super. In fact, all of the equipment used is more or less air-conditioned.

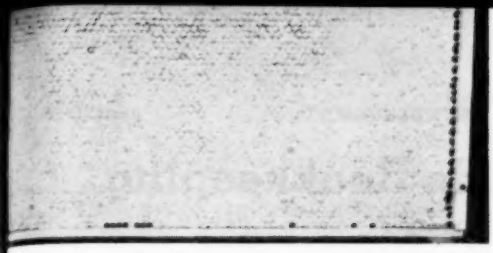
There are several reasons why only nine frames, instead of ten, are used in the brood chamber. With only nine frames and a follower at each side better access to the brood chamber is afforded. Lifting out the board nearest to you leaves plenty of room for removing and replacing each frame before touching the next frame. No hunting for a place to set a frame of brood is necessary. This reduces the dangers of disease, chilled brood, and an occasional mashed queen; this number also gives a more compact brood nest. But my chief reason is that I get more brood in these nine frames than I would in ten. Although this sounds impossible, observations prove it is correct. It is seldom that a queen will lay in the two outside frames, especially in a ten-frame hive. The general rule is that you have eight frames of brood instead of ten. The variation of temperature near the side wall of the hive is not conducive to brood rearing, but with these dummy boards at the side there is a difference. This gives what one might call an elastic brood chamber. It is ventilated and insulated. The queen can lay in these outside combs with conditions almost as perfect as the center combs.

Along with brood chambers come frames and brood combs. The frame adopted by the writer is the Dr. C. C. Miller frame. The frames are "nail spaced", the nails being driven until only one-fourth inch remains. Perhaps some beemen will want to place "nail-spacing" with antiquity, but when we examine a set of combs that have been correctly nail-spaced we find better ventilation (since all space at the end of the frames is open and not partly filled with wood) and more accurate spacing with only a nail head against wood. Bees, therefore, do not propolize as much as with some spacers. Since points of contact between the frames are only the nail heads, fewer bees will be killed. How nicely frames come out when the top-bar only reaches to within a quarter of an inch of the end wall thus allowing a bee space at the ends of the top-bars. This calls for more accurate driving with the end staple. Good combs are an asset instead of a liability to any beekeeper. It is perhaps needless to say that only full sheets of foundation are ever used, and are properly

Right: The one story hive with deep entrance and the cover that does not extend over sides of the hive.

Below: The deep bottom board with the false bottom in place. Staples on sides and bottom make it easy to remove.





Brood combs drawn and filled with honey insure combs like these. A delight to the eye. And every cell of worker size.

supported by wires. I have a hobby, or maybe I am just a crank about good combs, the kind that have brood from bottom-bar to top-bar. **Foundation should never be drawn in the brood chamber;** but always above the brood. There is a feeling of satisfaction in looking at those nice big two-inch entrances on a hot July day when the temperature is hovering near the 100-degree mark. In using so deep a bottom-board, a slatted, or false, bottom is used to prevent the bees from building comb beneath the frames. On rare occasions some comb is built below this slat, but in all my years of using it not one queen cell has ever been found beneath it. In wintering, it would be best to remove this false bottom, giving the bees a splendid clustering space. And do they love this space! However, it is necessary to return it in early spring before any kind of a flow, or what a mess there would be to clean off the bottom of the frames.

We now come to the most essential part of all comb-honey equipment—the super. The T super is hardly known in some places. It is called a T super because, instead of having section-holders, the sections rest on tins shaped like an inverted T. The first mention the writer can find of a T super was during the North American Convention at Toronto, Canada, 1883 when Mr. D. A. Jones of Canada showed it to Dr. C. C. Miller who adopted this super. The one I now use is quite an improvement over the original. Since I had no part in the improvement I wish to comment on it. The ventilated ends and thin side walls were added by Chas. A. Kruse. To my estimation this comb honey super is the finest contribution to the comb-honey world aside from the one piece section. Some of the fine points of this super are the increased weights of the sections, whiter sections, and the outside corner sections are invariably as heavy, sometimes heavier, than those in the center of the super. The ventilated ends and thin side walls give the bees free passage on all four sides of the sections. The sections rest directly upon the T tins, using no wooden section-holder. I quote Dr. Miller in saying that the bees do not have to cross any sticks or spaces.

Were I forced to change any methods of comb-honey production, this comb-honey super would be the last of my equipment to be changed.

[We are glad Mr. Killion has advised against attempting to make or use special made equipment. Standard equipment is much more economical and is always available.—Editor.]

This fine-looking apiary belongs to Olaf Erlandssan, of Wessigebro, Sweden.

XUM

Beekeeping Needs Bookkeeping

Lloyd C. Gardner

An Efficient System of Tabulating Costs Would Help to Stabilize the Honey Market

In any line of business, bookkeeping makes up one of the important integral parts of that business, and upon this department will possibly depend the success or failure of the business.

Very few farmers and beekeepers I have come in contact with use any system of keeping costs. After questioning some of them I find that most of these persons simply had a horror of bookkeeping because they believed it very complicated. And after it was explained that there was no need for complicated systems practically every one of them was interested and anxious to adopt the system.

I gave a talk some three or four years ago at an annual meeting of the Ohio Beekeepers' Association outlining our system. Since then I have had a number of requests for it.

Take an Inventory

With any system of bookkeeping and cost accounting it is necessary to first know the worth of the business. Therefore, an inventory must be made. The inventory should include everything used in the business including all money, or bonds, belonging to the business. Of course, you are asking why bonds and money? As we get to the journal sheet this will be fully explained.

Also remember that there is no advantage in padding an inventory since it is important to take a depreciation from the listed or inventoried articles each year. In other words, each year sees more wear and tear on the various items, this depending upon use. For instance, bottom-boards, frames, etc., will see more wear and tear than tools used in the honey house. Therefore, it follows that a greater depreciation will have to be charged to some articles than others.

Lloyd C. Gardner.

Let us say, for instance, that the years of usefulness of hive bodies, generally, would be fifteen years, bottom-boards, ten years, frames, eight years. We then would charge off 6⅔% for bodies, 10% for bottom-boards, and 12½% for frames.

Depreciation Charges

While we follow nearly the method given, it can be made more simple by charging an average depreciation, of, say, 5 or 6% which would apply on all items, or, in other words, be taken from the inventoried yearly valuation.

In other words, Mr. Business says, "If you will furnish the labor and give me an old-age pension, you can have what is left." Of course, some figure interest on investment, but in a strict sense this is simply adding another depreciation. The income tax division at Washington, I believe, has ruled this out.

While we are on the subject of depreciation, it should be remembered that the money charged off should be put into the bank. Many of us disregard this important matter. But if we look toward the future we can see the importance of keeping this part of our finances separated from savings or income.

At a flat rate of 5% depreciation, we should have in money at the end of twenty years the total valuation of the business. The interest from the deposited money from depreciation becomes a part of the business income and is, therefore, credited to the gross receipts at the close of each business year.

The Journal Sheet

On our journal sheet are divisions for the various entries, as shown in the drawing.

Beginning at the left of the sheet, the first heading is "Month". This, of course, needs no explanation. Under the second heading "Labor" are 4 spaces left blank into which is written the laborer's name. Next "Total Hours" which needs no explanation and next to this sub-heading "Expended", which means the total of all labor expense including your own.

The next general heading is "gasoline" under which are the sub-heads "Gallons", "Rate per Gal." and "Expended Oil" under which are subheads the same as under heading "Gasoline".

"Mcl. Expense" is the next general heading covering "Rents, Containers, Etc." Between the next double lines headed "Total Expended" is entered a total of the day's expense. "Investments" follow, and "Cash Lay Out" is the last column. At the foot of the page below the heavy line is a space designated as "Totals".

We are now ready to make our first entry in the journal sheet.

After showing the month and days, under the heading "Labor" write in the names of the laborers. Beneath each name in the space provided show either the daily or hourly rate and within the next space directly beneath, the hours each worked. Next under "Total Hours" show a total of the hours, followed in the next column by a total expended.

Under "Gasoline" the gallons bought, the rate per gallon and the total expended for gasoline. The entry under "Oil" is made the same as is all remaining entries.

Within the column "Total Expended" is shown a total of the day's expenses. In this instance a total of $90.55 is the expense for this day's operations.

To the right and above the word investments is written in the amount of the inventoried valuation of the business. (This does not show in the accompanying illustration.) And within the last column is shown cash lay-out for the day. According to our entry we find a total of $155.55 for this day.

As we check across the sheet we find we have daily totals of all expenditures including a total of all daily expense, total investments and a total cash out-lay for the day.

After the sheet is completed for the entire month, the monthly totals for the various expenditures, etc., is found by adding the columns vertically.

To the figure we enter to the right and above "Investments" which represents the inventoried valuation of the business we add the sum of the investments. This will give us the valuation which we will enter on the top of the next sheet in the same place.

Cost Sheet is Perpetual Inventory

While this is a cost sheet only, it provides a perpetual inventory and gives one a very clear and understandable picture of the transactions, and for the average beekeeper will answer his accounting needs with the addition of a sales sheet.

A beekeeper's year in Ohio should begin about April 1 and end March 31. Now let us assume this is the

Month April	Day	Labor T. Smith	Labor W. Smith	Labor S. Jones	Labor J. Doe	Total Hours	Gasoline Gallons	Gasoline Rate per Gal.	Gasoline Expended	Oil Gallons	Oil Rate per Gal.	Oil Expended	Mcl. Expense Rents, Containers, Etc.		Total Expended	Investments		Cash Lay Out
	1	8	8	8	8	32	13	50	10	18	1	80	¼	40	25	100	QUEEN BEES	75	90	90	55	100	NEW HIVE BODIES	65	155	55
																	TAX INCLUDED OIL									
	2																									
	3	8	8	8	8	32	13	50	5	18		90				600	POUNDS SUGAR	35	99	39	90				39	40
	4	8		8	8	24	11	00	10	17	1	70				1	YEAR BEE-YARD RENT	10	00	22	70				22	70
	5	8		8	8	24	11	00	5	17		85	½	70	35		GASOLINE TRUCK TAX INCLUDED OIL	1	30	13	70				13	70
	6	8	8			16	5	50	10	16	1	60				50	FEEDER PAILS	2	50	9	60				9	60
	7	8	8			16	5	50	5	18		90				2	MEALS	1	00	7	40				7	40
	8	8	8			16	5	50	5	18		90	½	120	60		ELECTRIC BILL PHONE BILL TAX ON OIL	3 2 1	00 50 52	12	52	1	NEW EXTRACTOR	125	137	52
TOTALS		56	40	32	32	40	65	50	50		8	65	1/4		110			160	73	196	87			190	355	17

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April sheet. Under "Mcl., Expense" we will enter the amount of depreciation taken as an item of cost which amount, of course, is subtracted from the final inventory figure. For instance, my April sheet shows a total investment of $5090.00, (the amount which should be written in above "Investments") which, including the $190 shown on the sample sheet, amounts to $5280.00 A 6% depreciation would mean $316.80 which amount would also be charged to yearly expense and subtracted from the invoiced valuation, or a new valuation of $4963.20 to be carried to the new year's page.

Assume that you have banked the amount of each year's depreciation and that this money has earned 2 or 3% interest. To the gross income sheet (or it may be entered on gross sales sheet as interest) the amount of this interest is added to all other gross income, honey, wax sales, bees, etc.

Now from gross sales is taken the total expense and the remainder should be net.

A business statement that will be very comprehensive can be made up from this sheet.

As I have previously stated, this system will fit most small beekeepers and provide a comprehensive system for any one.

Bookkeeping Reduces Unnecessary Costs

There is no way for a person, firm, or corporation to find the loop holes in their business without a system of cost accounting.

Several years ago our costs were more than twice what they are today and we were absolutely in the dark as to where we could begin to pare down these costs until we set up a bookkeeping system.

Our business has outgrown the simple method as given here. We have added several journals; accounts payable, accounts receivable, and sales, together with a ledger. We now use a double-entry system which, of course, is more or less complicated to any person not acquainted with recognized bookkeeping and accounting.

The ruled sheets shown here are set up in a printing office. Any standard journal sheet can be set up and the headings written in.

We also use a carbon sheet so as to have a copy of each original sheet.

I cannot close this article without stating that if more beekeepers kept books on their business, there wouldn't be the wide difference of honey prices among beekeepers today and we would have a mo.e stablized market.

Cleansing Flights of Bees

Allen Latham

Good and Ample Stores, Strong Colonies and Adequate Protection Help Reduce Bee Losses

This article is not meant for the experienced beekeeper, though he may read it if he chooses. Rather is it meant for the beginner who may be puzzled by some of these flights and who is especially ignorant of the winter flights.

I well recall the first playflight I ever saw, 50 years ago next July.* I had caught my first swarm in early June and hived it in a box hive. About a month after I had hived it I found the bees apparently in great excitement. Thousands of bees were leaving the hive plump of body and those entering were empty. I ran to the house in great trepidation exclaiming that my hive was being robbed, for I had read of the robbing propensities of honeybees.

I grabbed a big piece of mosquito netting and threw it about the hive. Soon I had a feeling come over me that the bees were acting now rather in more fear and anxiety than one would expect of robbers. I picked up one of the plump bees to see if its load was honey as I supposed. I found the abdomen of this bee full to overflowing with a pasty yellow mass. I threw off the netting and the eager way in which the empty bees

*Article written in March, 1934.

fell to fanning as they found the entrance gave me a great light.

Young bees usually take their first flight when about five days of age. They have consumed some pollen and their intestines are somewhat heavy. They relieve themselves, the flight lasting several minutes since all the bees do not take wing at one time. If the weather is good they are likely to take daily flights from then on, at least they do not let many days pass without a flight. But if the weather is bad and no flight occurs for five or six days, the second flight finds these workers very heavy indeed with pollen waste, for they are entering the height of their career as nursebees and are eating vast quantities of pollen. (Indeed, few old beekeepers realize what vast quantities of pollen are consumed in one year by a colony of bees.)

Now, when a flight occurs after such a delay the outgoing bees are heavy and their distended abdomens weight them down so that they fly with difficulty even on a warm summer day.

Low Temperature Affects Flight

The wing muscles of the bees are active in almost direct ratio with the temperature. At 40 degrees the bee flies slowly and can cover but a short distance. At 50 degrees the flight is fairly strong and bees can even take flight from snow unless the sky be overcast. A little sunshine will help greatly, and in all probability the temperature of a bee is slightly above that of the air, and is still higher if the sunshine strikes it. At 60 degrees the flight is strong and well sustained. At summer heat the flight is rapid and snappy.

Every beekeeper knows that bees wintering outdoors are better off with an occasional flight, but a study of these winter flights will not be amiss.

If winter comes on late and there is no snow until into January the bees are very likely to take several flights and there are not likely to be many bees left in the hive at mid-January with much in their intestines. Snow may now come and bees may not have another flight till well into March and suffer but little thereby.

Today, March 2, as I write, the bees are having some flight though the temperature is but 45° in the shade. The sun has shone most of the mid-day hours and those bees leaving the hives have returned for the most part. Few have fallen to the snow to remain there. I noted one colony the bees from which were very heavy and distressed. I assume that this colony must have had a stock of inferior stores. With clean honey, or syrup, bees will stand two or three months of confinement with almost no harm.

Now it so happens that the bees here had flights in every month up to and including early January. They have been without flights about seven weeks. But suppose they had not had those early flights.

Bees often breed late into the fall. The last nurse-bees and all the newly-emerged bees may enter winter with heavy intestines. Their condition becomes steadily worse as the winter progresses. Then there comes a day with snow on the ground but with a temperature that draws the bees out. A heavy flight occurs and the snow is thick with bees that have dropped and been dropped upon it.

Now it is often said, and rightly, that usually bees that drop on the snow are weak and of no value. Many are dead bees carried out by active workers. But when a flight such as I last speak of occurs, there may be a heavy loss of the best bees of the colony. Those young bees are the bees which should normally carry on the colony until a new force comes on. Now a colony may have 4000 bees which went into winter in need of a flight, and many of them with untried wings and few of them experienced fliers. The winter flight comes and they leave to relieve themselves. They are so heavy and their unused wing-muscles so torpid that they cannot rise in steady flight. They drop to the snow by hundreds. What can one do?

Nothing One Can Do

Most of us with our hundreds of colonies do nothing but grin, or swear, and take the loss, but those with a few colonies can do much to help. In my earlier days I always watched for these flights and got ready for them. I shoveled the snow away or made it level. Then I scattered planer shavings or a lot of chaff from the barn all about near the hives. Sometimes I spread a sack in front of each hive.

Even with all these helps I have seen such a flight leave knots of bees here and there as large as hen's eggs,

(Continued on page 262)

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Honey in Cakes

Mrs. Benj. Nielsen

The Use of Honey Produces Inimitable Flavor and Remarkable Keeping Qualities

Good icing is a cake's crowning glory. This tasty Honey Mocha Icing is a fitting crown for Honey Spice Cake.

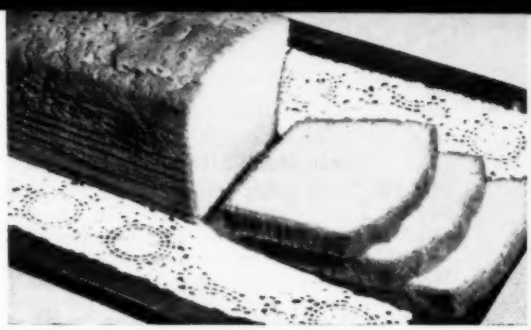
Many a good cook's reputation for culinary skill is earned by the cakes she contributes to bake sales, church suppers, and the family gatherings. What woman isn't secretly thrilled to find her cake the lightest, finest grained at any gathering? There are no deep, dark secrets or magic tricks to master in making successful cakes. It is a matter of selecting good recipes and following the instructions to a T. Any woman who measures, mixes, and bakes with care can turn out cakes of which to be proud.

Those making honey cakes for the first time may be a bit disappointed with some of the cakes; at first they may seem a little heavy and not quite sweet enough. But allow them to age a bit and you will be more than pleased with their flavor and mellow deliciousness.

Fruit cakes, in which honey is the sole sweetening agent, are in a class by themselves. For best results in other classes of cakes, it seems wise to use other sugars along with the honey. If you have a number of favorite cake recipes, and like to experiment with honey in your cookery, there will be some grand surprises in store for you and your family when you proceed the honey way. Light, fine, even-textured cakes result when one-third to one-half of the sugar is replaced with honey. Some authorities advise reducing the amount of liquid called for in the recipe by one-fifth, others by one-fourth, for each cup of honey used. No hard and fast rule can be followed in all sections of the country if results are to be satisfactory. The water content of honey varies in different sections of the country and may vary from year to year in the same section. In dry or semi-arid sections, the liquid need not be reduced. Where water content is known to be high some adjustment must be made. In making this adjustment, the ingredients used must be taken into consideration; chocolate, raisins, dates and mixed fruits may absorb moisture to such an extent that no part of the liquid should be omitted.

Use first quality ingredients, measure carefully, remembering all measurements are level. If you would have cakes that are tender and velvety, the shortening, sugar, honey, and eggs must be creamed thoroughly. Fine texture in the finished product depends upon this. If the honey is added to the egg whites, add it slowly to the stiffly beaten egg whites to produce a smooth meringue.

Good cakes can be made with bread or all-purpose floor but for fluffier, more delicate cakes, pastry or cake flour should be used. Pastry flour gives cakes a tender thin crust and a delicate crumb. Pastry flour can neither absorb nor retain moisture. Honey and sour milk both possess these desirable qualities, making delectable cakes with superb flavor and keeping qualities. The flour should be sifted before measuring and resifted three or four times with the other dry ingredients. Dry ingredients should be added alternately with the liquid (beginning and ending with dry ingredients)



Prize winning Honey Pound Cake is the kind you will make again and again.

using as few motions as possible in order to conserve the air already incorporated in the mixture.

The importance of baking temperatures in the making of honey cakes cannot be over-emphasized. Moderate temperatures are imperative. Too hot an oven will result in a humped cake and possibly a scorched taste.

These cakes with their delectable honey icings and frostings, to seal in the honey flavor, have been tested and heartily approved in the Nielsen taste-testing kitchen. And by the way, do you use granulated honey for cake filling? It's delicious and so easy to use—just sticky enough to make cake layers behave! Stir a bit of granulated honey until smooth and creamy, spread it on—that's all there is to it.

Honey Spice Cake

One-half cup brown sugar, ½ cup honey, 1 cup thick sour cream, 1 egg, slightly beaten, 1¾ cups sifted cake flour, 1 teaspoon soda, ¼ teaspoon cream of tartar, ½ teaspoon salt, 1 teaspoon nutmeg and 1 teaspoon cinnamon.

Combine sugar, honey and sour cream, beat hard to blend well; beat in slightly beaten egg. Sift flour, measure and resift three times with rest of dry ingredients. Add dry ingredients to first mixture, stirring only until well blended. Pour into well-oiled loaf pan, bake in moderate oven, 350 degrees F. for about 45 minutes. Cool and cover with

Honey Mocha Icing

Four tablespoons butter, 4 tablespoons honey, 1 teaspoon vanilla, 1/16 teaspoon salt, 3 tablespoons strong coffee, 1 tablespoon cocoa, and 2½ cups sifted confectioner's sugar.

Cream the softened butter, add honey, vanilla and salt. Add coffee to cocoa, blend thoroughly and add to creamed mixture. Stir in confectioner's sugar gradually, beating until smooth.

Honey Pound Cake

Two cups cake flour, 1 teaspoon baking powder, ½ cup butter, ½ cup honey, 4 eggs, separated, ½ cup sugar and 1 teaspoon vanilla.

Sift flour, measure, adding baking powder and sift four times. Cream butter very thoroughly, add the honey and beat until light and fluffy. Add egg yolks, one at a time, beating well after each; continue to beat for 4 minutes. Beat egg whites until stiff but not dry, add sugar gradually to make a smooth meringue. Fold into batter. Pour into greased and wax-paper-lined loaf pan (5x9). Bake in a very moderate oven, 325 degrees F. for about 1 hour and 10 minutes.

If you are using an electric mixer, use medium speed to cream butter for 1 minute; mix in honey for 5 minutes; slow speed for beating in yolks for 5 minutes; add the flour all at one time, mixing only until flour disappears; medium speed for making the meringue and slow to fold it in.

Whipped Cream Cake

One cup heavy cream, 2 egg yolks, ½ cup sugar, 1 teaspoon vanilla, 1¾ cups sifted cake flour, 2½ teaspoons baking powder, ½ teaspoon salt, 2 egg whites, and ½ cup honey.

Whip cream until thick; add egg yolks and beat until foamy. Add sugar gradually and the vanilla. Beat well. Sift dry ingredients together, add to first mixture, stirring only enough to make a smooth batter. Beat egg whites until stiff; beat honey in gradually. Fold lightly into batter. Bake in one 8-inch pan, which has been oiled and lined with waxed paper. Bake in moderate oven, 350 degrees F. for 30 to 35 minutes. Cool and top with

Honey Orange Icing

One-fourth cup butter, ¼ cup honey, few grains salt, 3 tablespoons orange juice, rind of one small orange, and about 2½ cups sifted confectioner's sugar.

Cream softened butter and honey together, add orange juice, grated rind, and salt. Blend in confectioner's sugar to spreading consistency.

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Delicate White Cake

1 cup vegetable shortening, 1 cup sugar, 1 cup honey, 6 egg whites, 4 cups sifted cake flour, 4 teaspoons baking powder, ½ teaspoon rose extract, ¼ teaspoon salt and 1 cup milk.

Cream softened shortening well, add sugar slowly, then the honey and cream until very fluffy. Add 2 unbeaten egg whites, one at a time, beating well after each addition. Stir in flavoring. Sift flour, measure and resift 3 times with the baking powder and salt. Add alternately with the milk to first mixture, beginning and ending with the dry ingredients. Fold in egg whites beaten until stiff. Bake in 3 layers, in moderate oven, 350 degrees F. for 35 to 45 minutes. Put together with lemon filling and cover with a boiled honey frosting.

Lemon Filling

Five tablespoons cornstarch, ¾ cup water, ½ cup honey, 2 eggs, 2 tablespoons butter, ¼ cup lemon juice and grated rind of 1 lemon.

Combine cornstarch and water to make a smooth paste, add honey and cook in double-boiler until thick, stirring constantly. Pour slowly over beaten eggs, return to heat and cook 3 minutes to remove raw flavor of eggs. Take from fire and stir in butter, lemon juice and rind. Beat until smooth. Let cool before spreading on cake.

Honey Fudge Cake

Moist, of excellent flavor and velvety crumb, this cake was voted "tops" when it was sampled.

One-fourth cup butter, 1 cup sugar, 2 egg yolks, 4 squares grated chocolate, 2 cups sifted cake flour, ½ teaspoon salt, 3 teaspoons baking powder, 1⅓ cups milk, 1 teaspoon vanilla, 2 egg whites, 1 cup honey and ¾ cup finely chopped nutmeats.

Cream the softened butter; add sugar gradually and continue to beat until light and fluffy; beat egg yolks until thick and lemon-colored and add to mixture; cream well. Stir in chocolate which has been melted over hot (not boiling) water and cooled. Sift flour, measure and resift 3 times with salt and baking powder, add to creamed mixture alternately with the milk, beating just enough to make a smooth batter. Stir in vanilla and nuts. Beat the egg whites until stiff, add honey gradually, beating constantly to make a smooth meringue. Fold gently into batter. Pour into two 9-inch, well-oiled layer pans, lined with waxed paper. Bake in moderate oven, 350 degrees F. for 45 minutes. Cool and put together and cover with

Seven Minute Honey Frosting

One cup sugar, 2 egg whites, unbeaten, 2 tablespoons honey, 3 tablespoons water, few grains of salt, 8 marshmallows, cut into small pieces and 1 teaspoon vanilla.

Place sugar, unbeaten egg whites, honey, water, and salt in top part of double-boiler. Cook over rapidly boiling water, beating constantly with rotary or electric beater for 7 minutes, or until mixture stands in peaks. Remove from heat, add marshmallows, and vanilla and beat until blended.

For variation: melt 4 squares of unsweetened chocolate and pour over the top of the frosted cake, allowing it to run down the sides of the cake.

During some recent tests, this honey spice cake was kept for two weeks; it was still soft, moist, and much improved in flavor.

Aurora, Nebr.

This moist delectable Honey Fudge Cake will be tops with the family.

The Effect of Melted Beeswax on Heated Honey

E. F. Phillips and William L. Coggshall

In an article appearing last month the damage to honey was discussed, in which the honey was exposed only to the air and to the container. It is an increasingly common practice to allow cappings to fall into some kind of melter, in which case honey is heated in contact with melted cappings, some of the honey reaching a considerably higher temperature than that of melted cappings. Since steam is used to heat grids, some honey may occasionally reach the boiling point of water. This presents a different problem and should be considered separately. The records here given apply equally to any equipment in which honey is heated in contact with melted cappings, and they are presented to show what happens to some honey under such conditions.

Tests were made with clover honey, all from one 60-pound can, the tests being identical except as indicated. The honey was cautiously heated enough to dissolve almost all crystals, and when poured into the beakers had a temperature of 95° F., but it had been slightly warmer than this during liquefying. No change of color or flavor was detected because of the preliminary heating.

Beakers of one liter capacity were used, glass being chosen to avoid the effects of metal vessels. Into each beaker was placed a pound and a half of honey, filling them approximately one-third. Three lots were heated without additional material, while others had added to them 75 grams (less than three ounces) of either cappings or beeswax as indicated in the tables. The cappings used were first thoroughly washed in cold water to remove any honey which might still adhere to them, broken up and then dried over night in a room with low relative humidity. The beeswax used was comb foundation containing only beeswax.

The beakers were placed in a water bath so that heat might be applied gradually and uniformly. The water bath was heated by injecting steam from a hose, the end of the steam hose being placed in a honey drum resting on its side, with the top open, to avoid splashing and to facilitate mixing of the water. The temperature of the water bath rose slowly at first and then more rapidly to 190° F., and remained at this temperature with variation of not more than two degrees. The temperature of the honey rose slowly until the cappings were melted, after which it rose to 176° F., and so remained until each vessel was removed. The beakers when removed were allowed to cool in the air. The temperatures chosen were such as may be expected to occur in any capping melter, which of course must be high enough to melt cappings. Since boiling has been observed in capping melters when improperly used, the more moderate temperatures chosen are such as will occur to some honey in any capping melter. Not all honey in a capping melter may reach the temperatures indicated, but that is immaterial, since the purpose of these tests was to see what happens to some of the honey.

Determinations of water content of the honey were made by the use of the refractometer, using the Chataway tables. Determinations of color were made with the Pfund grader, and are recorded in units and fractions on that scale. For purposes of quick comparison, extra white lies between 0.8 and 1.7; white, 1.7 and 3.4; extra light amber, 3.4 and 5.0; light amber 5.0 and 8.5. The grades extra white and extra light amber are not always used.

Sample 1. Honey only. The temperature was gradually raised until it reached 160° F., when this sample was removed. This required 35 minutes, which indicates that heating was gradual. Color, 1.10 (extra white); water content, 18.20%.

Sample 2. Honey covered by melted cappings. Cappings were melted in ten minutes after the removal of sample 1, and sample 2 remained under melted cappings for an additional fifteen minutes. Color, 1.30 (extra white); water content, 18.58%.

Sample 3. Honey covered by melted cappings, thirty minutes. Color, 1.68 (border line between extra white and white); water content, 18.60%.

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Sample 4. Honey covered by melted cappings, forty-five minutes. Color, 2.10 (white); water content, 18.60%.

Sample 5. Honey covered by melted cappings, one hour and fifteen minutes. Color, 2.48 (white); water content, 18.92%.

Sample 6. Honey only, heated as was sample 5 (1 hr., 15 min.). Color, 1.50 (extra white); water content, 17.80%.

Sample 7. Honey covered by melted cappings, two hours. Color, 3.00 (white); water content, 18.60%.

Sample 8. Honey covered by melted cappings, three hours. Color, 5.49 (light amber); water content, 18.78%.

Sample 9. Honey covered by melted beeswax only, three hours. Color, 4.00 (light amber); water content, 18.44%.

Sample 10. Honey only, heated as were samples 8 and 9 (3 hrs.). Color, 3.50 (light amber); water content, 17.48%.

Sample 11. Honey with cappings, unheated, allowed to stand for five days. Color and water content undetermined, because of included small crystals.

Examinations of the samples for flavor after cooling were made by five persons, by the two authors who knew the history of the samples and by three persons who did not. There was complete agreement among the judges. It was easily possible to detect a flavor difference between samples 1 and 2. Sample 8 was described in most uncomplimentary terms by the three uninformed judges. One of the uninformed judges appears to have a keen sense of smell, especially for decomposed proteins, and he described sample 8 as being "as bad as a decayed pork chop." It seems clear from these samples that a large part of the damage occurs from the overheating of proteins, either those normally occurring in honey or those introduced in slumgum. Sample 10 was severely damaged by heating, as was sample 9, but sample 8 was by far the worst. Sample 6 was scorched, but was less damaged than sample 5. These tests indicate that the heating of honey for not more than fifteen minutes under melted cappings causes a readily detectable change, and that prolonged heating under such conditions ruins honey. Sample 11, which was not heated at all, acquired an unpleasant flavor from contact with cappings for five days. This is presumably because uncapping liberates materials with which honey in the comb does not come in contact. If the honey is removed at once after uncapping, these substances do not damage it.

The reason for making determinations of water content was that in a previous series of samples received, it was found that honey from a capping melter had an increased water content. There was a slight increase in water content in the honey under beeswax and a higher increase under melted cappings. This obviously did not arise from the previous washing of the cappings, since it increased with prolonged heating. Various guesses as to the cause of these differences have been made, one being that perhaps honey directly under cappings may be thinner, but this would not apply when the same honey was used in all tests. One might surmise that honey covered with some other liquid would not lose water by evaporation as rapidly as uncovered honey, but in these tests the covered honey gained in water content. The beakers were open at the top and all lots were exposed to a heated atmosphere with high relative humidity from escaping steam, an atmospheric condition which appears in many extracting rooms. Since too high a water content is objectionable, this change is worthy of consideration.

Advocates of the use of a capping melter may object to tests made by keeping honey under melted cappings for as much as three hours, but this may readily occur when for some reason the steady flow of cappings through the melter is interrupted, or when the capping melter is not emptied at the end of a day's run. For one type of capping melter it is advised that no wax be removed until about fifty pounds has accumulated, during which preliminary period honey would be more or less in contact with a steam heated grid, as well as in contact with melted cappings. It may also be objected to these tests that a temperature for the honey of 176° F. is too high, since honey leaving a capping melter (after passing around baffles and the like) has a lower temperature. Throughout the operation of a capping melter, some honey must always be in direct contact with melted cappings, and the purpose of these

tests was to determine what happens to at least some of the honey, not necessarily to all of it. All such conditions will vary with different capping melters and even more with different operators.

Because of the well-known fact that overheating of honey is damaging, it is not surprising that the honey heated under cappings or wax was discolored. Honey under melted comb foundation for three hours shows very little more darkening than did the honey alone, from which it may be concluded that melted beeswax is not the most serious factor. Melted cappings contain additional material which when removed from beeswax is called slumgum. This, being heavier than beeswax and lighter than honey, floats in an irregular layer between the melted wax and the honey, in direct contact with honey. All honeys, even the one heated for only fifteen minutes with this contact, show color and especially flavor changes that are undesirable.

Slumgum consists of a variety of things, pieces of silken cocoons, material left by larvae at the time of the last moult, and perhaps other foreign materials. There may be considerable propolis on cappings, especially those which have been over honey for some time, which in discolored comb-honey is called "travel stain." Propolis occurs on the outer surface of cappings, while the other ingredients originate inside the cells. The deeper the cappings are cut, the greater the inclusions of internal origin. If combs were used in which no brood has been reared, some of these materials would not be present, but the exclusive use of such combs is uncommon, nor is this a practice which can be considered essential.

It is clear that over-heating under slumgum causes greater color changes than when there is no cover, or when pure beeswax covers the honey. If the color changes were the only ones which occur, this might not be so serious, but the damage to flavor occurs to an extent which is truly serious. To darken a honey unnecessarily seems not to be a desirable practice, but to impair the flavor, as occurred in these tests, seems unexcusable.

Although capping melters have been used in conjunction with the extracting of buckwheat honey, tests like those reported for clover honey were not made with buckwheat honey. In another series of tests, reported earlier, it was found that buckwheat honey heated to 160° F. for less than a half hour after becoming liquid was definitely damaged. The buckwheat honey heated for longer periods was ruined. It is a matter of common knowledge among experienced buckwheat honey producers that buckwheat honey cannot be heated more than enough to liquefy it without damage, and although this is a matter of common knowledge, occasionally some beekeeper overlooks this fact and undertakes some method of heating this honey, for straining, settling or in melting cappings. Every time that some such heating device is used, the buckwheat honey producer damages honey, and it is clear that a capping melter could not be used in connection with this honey without serious damage.

In addition to the tests reported, other lots of honey from capping melters have been examined. One correspondent sent three samples without marking them, to show that the melter does no harm. One came directly from the extractor, one directly from the capping melter, and a third was a mixture of unknown proportions of these two. With the Pfund grader, the grades of the three were 1.00, 1.60, 1.76. Clearly the lightest came from the extractor, the darkest from the capping melter and the intermediate one was the mixture. Flavors corresponded with this supposition, for the lightest was a honey of high quality, the other two having an after-taste which was unpleasant. There was no taste of burned sugar detectable. The water content of the darkest honey had increased from 17.0% to 18.2%. Another beekeeper sent a single sample, taken at random from the top of a 60-pound can, a mixture from the extractor and the capping melter. The water content of this sample was 17.0%. Having nothing with which to compare this sample, the test was valueless, but the honey had an unusual greenish tinge and the flavor was less desirable than one would expect of so light a clover honey. So far proofs submitted to show that capping melters do no damage have failed to uphold the claims of advocates of these pieces of equipment.

(Continued on page 264)

XUM

Just News

Because of the numerous flowers in the Hawaiian Islands that make the bee industry a thriving one, the University of Hawaii recently established a course in beekeeping. Structure, life history, general behavior, activities and products of the honey bee will be taught. Bee diseases and the relation of the bee to agriculture and horticulture will also be discussed. C. B. Keck, assistant entomologist of the U. S. bureau of entomology and plant quarantine, will teach the course. A graduate of Kansas State College of Agriculture, he has been a practical beekeeper for several years in Florida, Kansas and Hawaii. He is a former deputy inspector of bee diseases in Kansas, and although he has made a specialty of comb honey, he is also familiar with bottled honey production.

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The annual Short Course for honey producers will be held at Ames, Iowa, on May 18 and 19. The guest speaker for the Short Course will be Professor George H. Rea, of Cornell University. The program will be made up of speakers of the local college staff which will make it possible to present a broad program pertaining to the problems of the honey producing industry.

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The Annual Meeting of Northern New York Beekeepers' Association for 1939 will be held at the home of Mr. A. A. French, Theresa, N. Y., Saturday, April 29, beginning at 10 a. m. Mr. French is one of the oldest as well as one of the most successful beekeepers in our Association. To quote from a letter that I received from Dr. Phillips, "Your proposal to make this meeting in honor of Mr. French is excellent, and I am for that sort of thing. He will appreciate it, for he is an appreciative man." Picnic dinner at noon, hot coffee furnished. Geo. Rea will be the principle speaker.—Benjamin Hosley, Pres.

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The Pacific Coast Branch of the American Association of Economic Entomologists will hold a three-day convention at Stanford University, Palo Alto, California, June 27 to 29. Dr. Ralph Smith has asked me to arrange for a beekeeping program and to invite all beekeepers of the West to attend the meetings. There will undoubtedly be a number of papers presented that deal with the results of research in apicultural problems and I want to take this means of asking those interested to send me the titles of their papers so that arrangements can be made for their presentation on the program. It will assure an earlier publication of the papers than would be the case if they were held until the December meetings. It is also my hope that a good representation of the leading beekeepers in the commercial field and also the research workers, teachers of apiculture and apiary inspectors will attend the apicultural section in order to take part in an informal discussion of the present status of the beekeeping industry and outline a program for the improvement of the industry on a national basis. This summer meeting would be an ideal time to discuss the program of the International Beekeeping Conference scheduled for Sacramento, California, November 7 to 10 inclusive.—J. E. Eckert, Associate Apiculturist, Davis, Calif.

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The following is the schedule of meetings arranged by J. E. Starkey, state apiarist of Indiana for April:

	County	City	Time
April 3	Fulton	Rochester	1:30 p. m.
4	Marshall	Plymouth	1:30 p. m.
5	St. Joseph	South Bend	1:30 p. m.
6	La Porte	La Porte	1:30 p. m.
7	Porter	Valparaiso	1:30 p. m.
8	Lake	Crown Point	1:30 p. m.
10	Newton	Morocco	1:30 p. m.
		Kentland	7:30 p. m.
11	Benton	Fowler-Boswell-Oxford	
12	Jasper	Rensselaer	1:30 p. m.
13	White	Monon (City Library)	1:30 p. m.
14	Starke	Knox	1:30 p. m.
15	Pulaski	Winamac	1:30 p. m.
17	Knox	Bicknell	1:30 p. m.
		Vincennes	7:30 p. m.
18	Daviess	Washington	1:30 p. m.
19	Pike	Petersburg	1:30 p. m.
		Winslow	7:30 p. m.
20	Gibson	Princeton	1:30 p. m.
21	Posey	Mt. Vernon	7:30 p. m.
22	Vanderburgh	Evansville	1:30 p. m.
24	Warrick	Boonville	1:30 p. m.
25	Spencer	Rockport	1:30 p. m.
26	DuBois	Huntingburg	7:30 p. m.
27	Harrison	Corydon	1:30 p. m.
28	Monroe	Bloomington	1:30 p. m.
29	Morgan	Martinsville	1:30 p. m.

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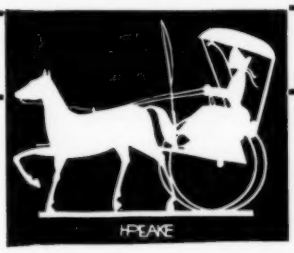
Word has just been received concerning the sudden passing of Everett J. McNay, of Baton Rouge, La., on February 16, following a brief illness. Mr. McNay was born in Kansas, 1910, grad-

(Continued on page 256)

Spinster Jane Says:



Spring is just around the corner, but we seem a long time turning that corner, in spite of our nice winter. Not a crow yet, and snow waist-deep in the bush! Though autumn is more gorgeously beautiful, spring is much more welcome. There is no music sweeter than the rushing of water, as the snow melts on the hillsides. The crow's harsh call seems pleasant, even more so the "pip, pip" of the first robin. The smell, too, of sun-warmed soil! Yes, spring is near.

Would it not be a wonderful thing if we could idealize our friends as we idealize spring? If we could remember only their fine, beautiful traits, and forget the things we dislike about them, just as we forget the slush, mud, and cold disagreeable things in spring?

Right now, my biggest worry is, where shall I put my bees this spring? Honey-Boy tried several sites with varying results. One was a small clearing on the hill at the "Mountain Pass", so-called because the road passes between two mountains there. The bees did well there, being midway between two big stretches of honey pasture. Boy's objection to that site was that bees returning heavily loaded found it hard to rise over the trees, often, in consequence, getting badly broken or ragged wings. As with machinery, the wear and tear was too great. And there was still another objection. One man claimed the bees were too near the road, that they had attacked his horses, when passing. Boy thought the hum of the bees, as they went busily about their work, scared him. He was afraid of bees, anyway, and no doubt mistook that hum for anger. Too bad he could not have been with them long enough to distinguish between the two. He would have had no doubt whatever, had the bees really put on an exhibition of real anger. They always have allies not hanging back from the fray, either.

A second site chosen was on a little knoll protected on the north by still another mountain that stretches all about us, in that direction, like a great protecting arm. It was shady here, too, but a little too far from the house. We could not hear the bees swarming, and not being able to live among them, lost many swarms. Of course, clipping the queens would remedy this, but Boy had an idea that this clipping shortened the queen's age of usefulness.

Whenever I have had bees, I kept them at the edge of my small vegetable garden, protected by a hill and shaded by both big and small trees. But, the young folk want seats and hammock here, it being the only shady spot near. Often on a hot day, while taking an hour off at noon, the men, too, like to stretch out on a rug there to rest or read. So do the girls, occasionally in the afternoon. Sometimes certain hives of bees resented their presence, and they were forced to beat a retreat.

My worries are so small it is a shame to mention them. If I were over in Spain, or in China, nothing so small would matter. And right here, we all should give thanks for peace at home, and a more peaceful outlook overseas, as well.

You, along with we Canadians, will be sure to see King George and Queen Elizabeth in the near future. If as favorably impressed as I expect, I may honor our queen by naming my first new queen after her. Such bees should be gracious and gentle with a queen so-named. Perhaps I had better wait and learn something of their disposition first.

Though it is a long stretch of imagination from royalty to humdrum everyday affairs, I must ask Mrs. Nielsen to try another use for honey. It is this. Try, when freshening salt pork, a liberal teaspoonful of honey in the water in which you parboil it. You will find it helps flavor, and your meat will be easily browned, needing no artificial brown ingredient. In my old home, in years gone by, we sometimes used brown sugar for this, but why isn't honey better? Every use we can find for it will make it more in demand, and it's popularity is what we are all working for, isn't it?—Spinster Jane.

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From the Field of Experience

DO YOU? I DON'T

C. H. Pease

Do you keep bees solely for the money they bring? Or, as a hobby, for the fun of it? Or, just to give the family what honey they want? Or, as some farmers (and others) do, and give them no attention, with the idea that they "work for nothing and board themselves"? I don't.

I keep bees for only the first three of these reasons. I have always had hobbies, and have several now, but apiculture is the most fascinating and interesting hobby of all. I liken it to a game of chess, in that it presents new problems at almost every move, and keeps one guessing.

Beekeeping is one of the most healthful of occupations. It necessitates exercise in the open air, one of the best and cheapest medicines in the world for both body and mind. In addition to this, it pays in dollars and cents, which is an incentive to take good care of the bees. While bees pay well for the care given them, even in our little state of Connecticut, no one will get financially rich keeping bees here, because we have not the hundreds of acres of good bee pasture that the western states furnish. However, for the indoor worker or one of sedentary occupation, the outdoor exercise and recreation derived from caring for a few colonies of bees go a long way toward keeping one in good health, and surely a person enjoying good health is rich, even without a cent in the bank. He need not feel like the poor fellow who, when asked if he enjoyed good health, replied: "Sure, I enjoy good health when I have it, but I haven't had any for ten years."

Do you "swallow" all of the ideas, whims and kinks you read in the bee journals, or hear from other beekeepers? I don't, because I know that, while some of them may prove O. K. in other parts of the country, or under certain conditions or management, they would not work the same with me. To illustrate: In the second year of my beekeeping I read an illustrated article in Gleanings (February, 1920) entitled "A Thousand Dollar Trick," explaining a method of wiring brood frames to prevent sagging. I "fell for it" and wired a lot of frames that way. I later observed that the idea ceased to be recommended long before either wired or three-ply foundation came onto the market, but I am still looking for the thousand dollars it was going to save me. One objection to that method of wiring was that the bees gnawed holes at the crossing of the wires, and another was the more complicated job of wiring, and the results were not worth it.

On the other hand, I have gathered some very valuable ideas from the magazines, which I am using successfully, and believe that beekeepers who do not take and read at least two bee publications (I take three) are missing something that would save them work, produce better results, put more honey in their combs and more dollars in their pockets. If they learn but one good kink in one issue it may be worth much more than a whole year's subscription.

Do you, when setting up new hives, nail them together and then paint them? I don't. I paint every joint with thin paint (thinned with boiled linseed oil) **before** the parts are put together, thus saturating the inner wood of the joints with oil and lead, especially the oil, which repels

Showing the concrete hive-stand, the wedge on the bottom board, the entrance block, the concrete weight on top, and the painted "hand-holes" on the supers, which are RED, and tell us that that colony is making COMB honey. (Extracting supers have white hand-holes.)

water. Without this joint painting, rain and moisture will get into those joints in spite of outside painting, with the result that rotting is inevitable. After the hive has been assembled, then paint the outside and you have a hive that, if kept painted in future years, will last longer than you will.

Do you use old boxes, or "any old thing" to stand your hives on? I don't. My hive stands are of concrete and never rot. They were cast in a form and made in my workshop during the winter, and set out in the bee yard in fresh concrete on solid ground, exactly level sideways and pitched forward three-quarters inch for drainage. To prevent the stack of hives and supers from leaning forward I nailed wedge-shaped strips on the sides of the bottom-boards so that the hives stand perfectly upright while the floor pitches down. Another advantage of this idea is the big open entrance (nearly two inches) for added ventilation during the hot months of summer. Of course, I had to make new entrance blocks but they are so much better than the old smaller blocks that it was well worth while. They are heavy enough to "stay put" without wedging them into the entrance where the bees "solder" them with propolis that makes them difficult to take out. The making of these is another good inside winter job.

Do you use stones, bricks, or "any old thing" for weights to prevent wind from blowing the covers off your hives? I don't. I made weights of small stones and concrete with wire loops at the top for "handles," imbedded and clinched on the under side. They weigh about eleven pounds. Not one of my covers blew off during our hurricane of last September, and, besides doing their duty perfectly, they are convenient to handle and put a finishing touch to the appearance of the whole apiary, the effect being, as the monkey said when he painted his tail sky-blue, "neat but not gaudy."

Canaan, Connecticut.

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INSECTICIDE KILLS QUEENS IN CAGES

Elmer G. Carr

Frequently a queen-rearer is much puzzled because a customer complains of queens arriving in poor condition. When the conditions to which they are subjected and their rather delicate nature is considered, it is surprising that they are able to perform so well after the mail trip. If all the conditions were known the customer's complaint might readily be explained as is shown by one incident:

A queen was mailed to a customer not more than thirty miles distant. The recipient reported all attendants dead and the queen in poor condition. Another queen was sent and reported to be even worse than the first one. The queen breeder then went to the postoffice of the customer to inquire for his residence. This was in a place where mosquitoes were quite troublesome at the time.

Upon entering the postoffice the postmaster was found to be vigorously filling the air with an insecticide to kill the mosquitoes. This readily explained the poor condition of queens received at that postoffice. Perhaps this is not an isolated case.

Pennington, N. J.

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PUSSYWILLOWS

Ernest Siegfried

With the sun shining, the bees flying excitedly, and the soft wind bearing the faint fragrance of the warm South, the beekeeper finds himself considering early sources of nectar and pollen. North of the Ohio, nothing probably can take the place of the pussywillow as a source of early pollen, the chief drawback being that normally, only here and there is a bush to be found. Yet it bears pollen so abundantly, with so many blossoms, that at a little distance a given bush looks almost like pure gold,—and the bees hover about it with all the eagerness of forty-niners.

The bloom lasts but a few days, and sometimes it is available for only a day, or even for only a few hours; and then a cold rain or snow, or a sleet storm spoils everything and confines the bees to their hives, so that when they can fly again, their eagerness to return to the well-remembered bonanza is doomed to disappointment. In most localities, I fancy there will be nothing more of consequence until the dandelions appear.

Both my own observation and the reading of recent articles in the bee journals, drive home more and more firmly the conviction that an abundant supply of pollen in the broodnest is essential to the sure and rapid de-

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velopment of the colony in the spring. Even though there has been a good supply in the preceding fall, yet the bees seem never to feel that they have enough. Men have discussed and tried out, for years, many and varied plants as sources of nectar, either for building up or for surplus; but how many have deliberately planted anything solely, or even chiefly, to assure plenty of food for the "babies"? Or has that all been thrashed out long before my time? Surely I have seen nothing about it in the journals.

City people sometimes have a pussywillow bush or two in their yards, and I am inclined to think my bees have been more than ordinarily fortunate, because my little backlot apiary is within reach of many of these. Still I have not been entirely satisfied, and when, the other day, I observed a bush being severely pruned, just as the pussies were beginning to burst from their Maltese gray to living gold, I gathered up, with permission, a large handful of the long sturdy switches, carried them home, and set them in a pail of water. "Now," I thought, "I can have any number of bushes of my own, and nobody will ruin the bloom just when it is most needed." If I were a large commercial apiarist, I am sure I should have large numbers of this plant within easy reach.

I make no pretense of being an expert in these matters; but I believe that all willows are easy to start from slips. They are fond, of course, of damp ground, and especially do they need plenty of moisture for a start, so that they may develop good root systems against the time of dearth.

My own plan is this: I let the switches stand for a few days in the water, and when the ground is soft with recent rain or thaw, cut the switches into lengths of fifteen or twenty inches. Then they may be thrust as deeply into the soil as possible, leaving not more than six or eight inches exposed above the surface. I suppose they could be started to some advantage in a specially prepared nursery bed; but I have not tried that. I have always thrust them directly where I expected them to grow. And for the most part, they have grown. I count hopefully on most of my current plantings to survive.

Marietta, Ohio.

ANOTHER OUTDOOR COLONY

C. M. Issacson

Last July a neighbor called to ask me to remove a swarm of bees clustered on an old house on his farm. He had three swarms already inside the walls, and wanted if possible to prevent this fourth one from doing likewise. I had no spare hives but rigged up a deep super with makeshift top and bottom and went to look things over.

Upon arrival I found the swarm to be a very large one, seemingly a bushel or more of bees settled under the eaves. On closer examination I perceived to my surprise that they had already begun five or six long combs. I did not really care for the bees so told my neighbor that they were in no danger of entering the house but would stay where they were. He accordingly decided to leave them, and I left, resolving to return later to note their progress.

This fall I took my camera along to snap a picture, as an "outdoor" colony is somewhat of an oddity in our locality. True to their early promise, the bees had developed enormously for such a comparatively late swarm. The over-all length of the comb structure was about six feet, several combs being a foot and one half to two feet at their widest point. Just as a rough estimate, I figured that there was about thirty square feet of comb surface—or the equivalent of about three ten-frame supers. This is certainly an unusual amount for an unattended swarm for half of a summer. Their location made it a case of unlimited room—their "super space" was limited only by the ground some fifteen feet below. Score another point for plenty of room and "ventilation".

We did not disturb them at the time of taking the pictures as I do not know just how much honey they had. The day was cold—not much above freezing—and the bees had clustered over not quite half of their combs. Their owner had previously broken off six or seven pounds from the upper corner but the bees later removed most of the honey within the protection of the cluster with the coming of cold weather.

I might add that with the advent of commercial beekeepers to this territory, it has become swarm infested. Everywhere homes are occupied by invading bees. I have seen bees in

This outdoor colony built enormous combs. The over-all length of the comb structure was about six feet, several combs being a foot and a half or two feet at their widest point.

chimneys, bees in attics, in all parts of the walls including above the kitchen door (much to the discomfiture of the home's rightful occupants); even several farms where swarms had taken abode in the woodpile, making the procuring of fuel decidedly uncomfortable; in old discarded barrels; and strangest of all, under an overhang in a ditch. With a great number of colonies and a season such as last, when the flow dribbled along for almost a month before opening up a short while, it probably is nearly impossible to prevent swarming to some extent. I had none in my small apiary but had to treat most of our colonies. At any rate, a large percentage of our farmers had their quota of unwelcome visitors and I received many requests for assistance during the summer.

Middle River, Minn.

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ANOTHER METHOD OF TRANSFERRING

R. E. Newell

I read the article by Mr. Walter H. Hull in the January issue on buying box hives. I have tried the methods used by Mr. Hull with various degrees of success but have had a much better result by using a Porter bee-escape. It is a rather dangerous practice to tear a box hive apart in an apiary and transfer the brood where there is any possibility of disease. If this work can be done some distance from any other apiary during a honey flow it is perfectly safe but messy to say the least.

The method I use is to set the old box hive to one side and in its place substitute an unpainted box made to take the regular frames in use in the apiary. A frame of brood with adhering bees is taken from a colony that can spare it, and placed in the center with drawn combs filling up the balance of the hive. Then I tack one or more Porter bee-escapes on over the entrance of the old box hive to permit the bees to leave their hive but making it impossible for them to enter. Then place the two as near together as possible. Returning field bees will enter the hive containing the frame of brood, and will start to work almost immediately.

Where possible I like to take a virgin queen with the nucleus to start such a colony, or a frame of brood containing a sealed queen cell. A young queen received through the mail can be introduced to the bees at this time, if a warm day is selected for this work. The young bees will be found to cluster over the front of the old box hive in large clusters, and these can be gathered up with the hands and dropped in front of the new hive, which they will enter very readily. There is no great work attached to this method, and many colonies can be made in a day. Generally with good strong box hives, there will be at least two or three pounds of field bees, and as the young bees hatch in the old box hive these assist in strengthening the nucleus.

If the weather is cool, it is better to wait for a warm spell to start making new colonies in this manner, for the frame of brood is likely to get chilled, and feeding is necessary. Where it is not possible to wait for favorable weather it is best to make a strong two or three frame nucleus from strong colonies in the yard. Such a nucleus can be made into a powerful colony in a very few weeks.

I have used this method for increasing my own apiary, and have found it a pleasant way to get bees out of old buildings, trees, etc. I have taken two good colonies each year from a house where the bees entered through the holes left in the walls by the telephone company when removing the telephone. I left the bee escape on for a week or so, or until I secured most of the field bees, and then removed them to the apiary and took off the escape from the building until the bees had an opportunity to build up again. Where the bees must be removed from the building the escape should be left on for a period of at least three weeks, then removed, and the bees allowed to rob the honey from the combs. Last year I had just removed

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the second colony or nucleus from a building when one of the finest swarms I have ever seen came and entered the weakened parent colony. I was able to secure a standard 10-frame colony within a week.

Where the bees are removed from box hives or other places that can be broken apart, this can be done much easier when the old bees are all removed by the escape method. The escape can be left on for two or three weeks and then the bees that remain may be destroyed by gas, the box hives brought into a bee-proof room and the combs rendered into wax at leisure. This method eliminates all danger of spreading foulbrood if present, for if the combs are found to contain disease, the whole nucleus may be destroyed without endangering other colonies. It is always well, however, to do this work at one side of the apiary, or, if possible, in some place at a considerable distance from other colonies to eliminate disturbance of the other colonies or from the possibility of bees from the box hives entering neighboring colonies.

Every beekeeper should be his own bee inspector in order to eliminate AFB and for this reason it is very practical for every beekeeper to clean up all the wild swarms, or established wild colonies, box hives, etc., in his neighborhood.

Framingham Center, Mass.

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AN EMERGENCY MATCH BOX

Benj. Nielsen

If ever you have found yourself in one of your outyards, without a match in your pockets, to light your smoker fuel, you will appreciate the idea of this reserve match box. Any small metal container, equipped with a tight lid makes a safe container; one with hinged lid is especially good for there is no lid to drop or misplace. Small, flat and compact, it may be carried in one's pocket, if desired.

For the past four years, such a box has been included as a part of the necessary bee equipment always stored on hand in the writer's car. On two occasions only has it been necessary to resort to this emergency box—but it was a real time and trouble saver then. Some folks claim matches stored so long will not light; the writer had no difficulty with those known to be at least four years

Small metal box container for reserve match supply.

old—but renew your supply frequently if it gives you a greater sense of security.

Aurora, Nebr.

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COLONIES TOO STRONG IN SPRING

L. C. LeMay

Last year I wintered colonies in double brood chambers and they came through very strong in the spring. There being so much room for the queen to lay in, the swarming impulse was overcome. Winter covering was left on until after the cold spring weather had passed, an ideal condition for early brood-rearing where there is an early honey flow. The queens surely filled the hive with brood.

It doesn't work so well here in my locality as the main honey flow does not come until late June and July. During the early months the queens have been laying to their full capacity and building up large swarms with just about enough honey coming in to keep them going. My experience over a period of years is that it doesn't pay to try to force building-up too early in my locality and it is an unnecessary strain on the vitality of the queen.

[In regions where colonies in double-brood chamber hives are very populous early in the spring and are likely to reach their peak of strength before the main honey flow begins, such colonies may be divided. The queenless divisions should be given young laying queens and sufficient food to enable them to build up to colonies of normal strength in time for the main flow. Do not try this, however, unless colonies are very populous and the main flow comes relatively late and is of considerable duration.—Editor.]

American Honey Institute News Notes

Honey and . . . . Week will be observed April 23 to 30 this year. A window streamer will be enclosed with your copy of Institute Inklings. If you desire additional streamers to give your grocery stores, drug stores or bakers, just drop us a line and we will be pleased to fill your order gratis.

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Honey and . . . . gives the business man an opportunity to feature other products such as cereals, fruits, bread, etc. with honey. There is no date on the streamers so that they can be left up indefinitely.

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Have you a good quality honey in new 60-lb. cans? Is it in such condition as one desires for use on his table? If you have, send your name to American Honey Institute and it will be sent to bakers in answer to requests.

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Men and Women of national note have contributed articles for Institute Inklings. We trust that you will read every word.

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Because of the number of requests that come to the Institute on where to purchase honey, a list of persons having honey for sale will be made out and sent out to those who desire the information. This service will contain the name, address of the person or firm, the kind, amount and approximate price of the honey. We will be pleased to add your name to the list if you desire it.

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The sixteenth edition of the Magic Chef Cooking prepared under the direction of Dorothy E. Shank of the American Stove Company of Cleveland, Ohio, is on our desk. It contains recipes for Honey Drop Cakes and Honey Cinnamon rolls.

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The following is an extract from a letter received recently: "At present we are putting out 20,000 loaves of bread a week and we want to add a new loaf this spring. Perhaps a Honey Bread would revive some of our business that was lost to a competitor last year. Honey Bread is unknown in this section so kindly send all information in regard to honey—how it is used and the cost."

How are we to hold this business when we secure it? Read the article from Bakers' Helper in the next issue of Institute Inklings.

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A beekeeper in one of our most progressive western states has offered to contribute to the Institute an amount equal to that given all the other beekeepers of his state.

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Honey is one of the glass packed foods to receive special promotion during the weeks of April 7 and May 5 by the Glass Container Association of America. Margaret Sawyer is Director of The Glass Kitchen.

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At a party given in New York City for the Home Economics Women in Business it was difficult to keep the plates filled with Honey Cookies. The Glass Kitchen received many requests for the recipe—which is always a good "proof of the pudding."

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The following is the recipe for the Honey Cooky that was awarded first place in the 1938 Cookery Contest. We recommend it. If you like it, why not make five copies for five friends and ask these women to pass the recipe on to five of their acquaintances?

Holiday Cookies

One-half cup butter, ½ cup sugar, ½ cup honey, 1 egg, ½ teaspoon soda, ½ teaspoon baking powder, ⅔ cup flour, ¼ teaspoon salt, 1 cup quick cooking oats, 1 cup shredded cocoanut, 1 teaspoon vanilla, ½ cup chopped nutmeats.

Cream butter, sugar, and honey together until light and fluffy. Add well beaten egg, blend together. Sift flour with dry ingredients, stir well. Add oats, cocoanut, and vanilla. Add nutmeats. Bake in moderate oven 350 F. Bake twelve to fifteen minutes. Bake in sheet and cut in bars.

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Honey is excellent to preserve fruit because it intensifies the original flavor of fruit to which it adds its own aroma. The milder flavored honeys are preferred for preserving fruits, the stronger flavored ones are better for pickling. Jams, jellies and marmalades made with honey are superior to those in which sugar is used.

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Editorials

This 80-page Spring Issue We call attention to this large April spring issue of Gleanings, enlarged from 64 to 80 pages to make room for the increased amount of advertising also the unusual number of splendid articles scheduled to appear this month.

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Let Prospective Buyers Taste the Honey "Taste and try before you buy" is a good slogan for salesmen of foods to use. A honey salesman of our acquaintance remarked just recently that if he could induce the buyer to sample the honey this usually resulted in a sale. Sampling certainly helps sales.

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Pacific States Bee Culture Laboratories Attention is drawn to the work being done on the Pacific Coast in the interest of beekeepers, described on page 205. There are in all over thirty Government experts all working under Hambleton at five widely separated points in the country. The beekeeper who does not keep posted on the work Uncle Sam is doing for him is missing something. For example, the work showing the importance of pollen reserves is epoch-making. Jas. I. Hambleton, the generallissimo on scientific bee culture is to be congratulated.

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What About Comb Honey? The above question is being asked, and rightly so. Some say comb honey is on the way out; others think it may come back, to a certain extent at least. Who knows the answer?

During the drouth years the production of comb honey fell off considerably because of unfavorable conditions for producing it. Weather conditions in the clover belt were more favorable last season and some nice comb honey was produced. We know of at least one commercial beekeeper who is changing over from extracted to comb honey production for the coming season.

Many people prefer honey in comb rather than the extracted form. The demand for honey in the comb will doubtless continue. Section comb honey is beautiful and appealing, has a delicate flavor or bouquet which extracted honey does not have, and is an article of food which cannot be duplicated.

While section comb honey is more difficult to produce than extracted honey there is a certain fascination about comb honey production that is gripping. It requires a different technique in apiary management. We are now of the opinion that the swarming problem, sometimes referred to as the comb honey producer's nightmare, is nearer a solution than it has ever been.

Our readers will be interested in the first of a series of articles on comb honey, by Carl E. Kilion, page 210 of this issue.

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Honey and . . . . Week The week of April 23 to 29, designated as "Honey and . . . . week", sponsored by American Honey Institute will give an opportunity for beekeepers over the country, especially those with stocks of honey to dispose of, to induce handlers of foods to feature certain foods such as cereals, pancake flour, etc.. along with honey.

It is hoped that beekeepers may avail themselves of the help the Institute can give in way of supplying suitable printed matter and streamers at a nominal cost in order to make this honey week a success.

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Beekeeping Costs When bookkeeping in connection with beekeeping is mentioned to the average beekeeper he throws up his hands in sheer despair.

Whether beekeepers like it or not they must keep books in order to know costs. The system need not be intricate but at least it should include the valuation of bees and equipment, the amount spent and the amount taken in.

Be sure to read what Lloyd C. Gardner says in his article "Beekeeping Needs Bookkeeping" page 214, this issue. Among other things Mr. Gardner says (and quite properly) that if more beekeepers kept books to know what honey costs them per pound to produce there wouldn't be so much cheap honey on the market. See next page.

Hand Pollination of Fruit Trees There are seasons when it is impossible to get satisfactory pollination with bees or insects, on account of weather conditions. Every beekeeper knows that in the spring, during the time fruit trees are in bloom, the weather is often bad, and very few, if any bees get out. In such seasons the yield of fruit is light.

During 1937 about 1500 acres in the United States were hand pollinated with satisfactory results. It takes about thirty minutes to a tree. The pollen is applied to the centers of the apple flowers with a brush. At present, hand pollination is recommended only as an emergency measure, during off seasons when bees can not fly or among solid blocks of McIntosh and Northern Spy.

It is well known among apple growers and some beekeepers that certain varieties, like those just mentioned, are sterile to their own pollen. A variety must be found that is compatible, that is to say, a variety, the pollen from which will pollinate another variety in which fruitage cannot be caused by its own pollen. In any case, a variety different from the one to be pollinated is recommended. Among the recommended types of compatibles are Delicious, Hubbardson, Twenty-Ounce, Oldenburg, Jonathan, Northern Spy, Winter Banana and Wolf River.

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Bee Inspector Makes Interesting Observation One State Deputy Apiary Inspector reports that out of 294 units of apiaries inspected 27 of the owners read bee journals and only 33 of the 294 beekeepers knew AFB when they saw it. It seems reasonable to assume that the beekeepers who read bee journals were the ones who were able to recognize disease.

This means that only about 10% of the beekeepers in that group read bee journals and were familiar with the symptoms of brood diseases. We hope this is not representative of the entire country but we fear it is, so far as the reading of bee journals is concerned.

It would seem that State and County Beekeepers' Associations might adopt as one of their objectives the encouragement of a more general reading of beekeeping literature, including bee books and bee journals.

Education, not only in detecting bee diseases but in producing and marketing honey profitably, is needed badly today and not until the rank and file of our beekeepers become intelligent along these lines will our industry advance as it should.

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Why Extracted Honey Granulates Quicker than Comb Honey stored in new extracting combs just built from foundation will not crystallize sooner than the same honey stored in sections; but honey stored in old combs from which one or more extractings have been taken, will usually granulate much more quickly than that in comb honey sections. In old combs primary crystals from former extractings may start granulation in from two to three months. If the combs are stored wet from extracting, crystallization in the new honey will start much sooner. Even if the combs have been cleaned out by the bees, there will be enough primary crystals left to start granulation. These primary crystals are very small and may not be seen with the naked eye.

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Cost of Honey Production Too High R. L. Adams, Professor of Farm Management, California Agricultural Experiment Station, and Frank E. Todd, Associate Apiculturist, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, have been making an extended study of the cost of the production of honey in California. This is set forth quite fully in Technical Bulletin No. 656, January, 1939, United States Department of Agriculture, Washington, D. C. We do not have space to give all the figures or the methods by which the results were secured. Two extracts from the Summary, however, will give one an idea of the interesting results. We quote from page 32 the following:

The gross cost per colony averaged $4.67. Overhead charges averaged $1.10 per colony, being made up of interest, 34 cents; and depreciation, 76 cents. Operating costs (76.4 percent) averaged $3.57 per colony consisting chiefly of labor, $1.90; transportation, 87

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cents; and supplies, 47 cents. Credits for by-products amounted to 74 cents per colony, making the net expense per colony $3.93.

Again, we quote from page 33, the following:

The study shows that 10.3 percent of the group made a profit, 9.1 percent broke even, while 80.6 percent operated at a loss. Profitable production was accomplished by some beekeepers in every area. Three factors appear to operate in effecting profitable production, namely, efficient management, high yields and prices.

At 1933 prices 87 pounds of honey were required to pay average expenses of production. In 41 apiaries the yields were in excess of 90 pounds per colony, but 23 of these had costs so high that even with high yields no profit was made. The 10 percent of the apiaries showing a profit combined high yields with low production costs.

If we are correct, these figures compare with figures obtained in other states. If so, the commercial honey producer should either sell his honey at a higher price, or cut down his cost of production. See page 232.

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Florida Citrus Juice and Honey Our old friend, William Hahman, of Ormond Beach, Florida, always an advocate of honey as a food, has been urging the Florida State Chamber of Commerce to recommend a soft drink made from citrus juice, orange or grapefruit, and honey. As a result of Mr. Hahman's efforts, The Florida State Chamber of Commerce is sending out the following:

Jacksonville, Jan.—"Florida Nectar," refreshing new drink of Florida citrus juices and honey was described here today by Harold Colee, President of the Florida State Chamber of Commerce, who said wider use of the new beverage would result in greater markets for Florida honey and citrus producers.

Idea of the new drink, Mr. Colee said, was advanced to him by William Hahman, amateur beekeeper of Ormond Beach.

Honey blends very well with grapefruit and orange juice, according to Mr. Hahman, but has the disadvantage of not readily mixing with the fruit juices. This can be overcome by making a mixture of equal parts of honey and warm water, two tablespoons of the mixture being added to each glass of juice.

More or less of the sweetening mixture can be used, according to individual taste. It is a curious fact that honey diluted in this way actually tastes sweeter than honey alone. This is explained by the fact the diluted honey spreads over a larger portion of the tongue and so effects more of the taste "buds".

Addition of the new drink to Florida's thirst quenchers will provide greater local consumption of oranges and grapefruit and also lead to greater use of Florida's premier honey."

It should also lead to a greater consumption of both honey and Florida citrus products all over the United States through Florida visitors returning to their homes with a taste for and the recipe to make the new Florida drink.

The sugars in honey and the sugars in oranges or grapefruit are identical, both invert sugar, and both contain mineral matter. When the combination is made, it produces a wonderful honey health drink, no question about it. Florida has both the honey and the citrus juice.

The same general suggestion might apply to what is known as "The Valley" in southeast Texas, where such enormous quantities of citrus fruits are raised. It is also applicable to all of Southern California. If there were more beekeepers like our friend Hahman, we could get the "Powers That Be" to endorse our product and get it into general circulation. As a health drink that is stimulating, and one that will go into the blood stream almost instantly, there could be nothing better than citrus fruit juice and honey combined.

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More About Honey for Infants Evidence is piling up thick and fast and that, too, from accredited medical sources, that honey is especially adapted for the use of old people and small babies, as a sugar that is more quickly absorbed than is any other sugar. Notice this from the "Physical Culture Magazine" which refers to the Journal of Pediatrics:

Honey is the best carbohydrate for use in infant feeding, according to a report in the "Journal of Pediatrics" for June, 1938. The report is based on extensive blood sugar studies made by Drs. F. W. Schultz, J. L. Gedgoud, and I. Loewenstramm, and also by E. M. Knott, Ph.D., all of Chicago.

The sugars studied were dextrose and levulose, sucrose (cane sugar) and lactose (milk sugar), and also corn syrup and honey. With the exception of dextrose, state the investigators, honey, which is composed of dextrose and levulose, was absorbed most quickly of all sugars that were tested during the first 15 minutes after ingestion, and it did not flood the blood stream with exogenous (foreign) sugar.

Honey also maintained a steady and slow decrease in blood sugar till the fasting level was again reached. It is pointed out that honey is so easily obtainable, and is so palatable and digestible, that it should be more widely used in infant feeding than it is.

Truth is mighty and will prevail. At a not far-distant date it is hoped that the average doctor will prescribe honey instead of corn syrup. Note in the matter in fine type that "honey is absorbed more quickly than all the sugars tested", including corn syrup. If the bee industry had back of it the money that corn syrup has for advertising, it would not be long before the medical profession would recommend honey for children and old people, in place of granulated sugar and glucose. We need our American Honey Institute today more than ever.

From North, East, West and South

NORTHERN CALIFORNIA, March 4.

Weather: The first of February when we were about to write of the fine sunshine of the month a rain came up and we had encouragement for a week that we would have the moisture necessary for a good crop of honey. The sun came out again with renewed energy and the balance of the month passed without rain. Now, March 4, we have some indication of rain. If it comes it will be a welcome visitor to farmers, and honey producers will be greatly encouraged. If it should pass for the balance of the season we will be left to do a lot of guessing. In the mountains we have had a good snowfall. The melting will produce moisture that will help. Some districts will get enough to insure plant life that may give a crop of honey. The prospect at this time is far from encouraging.

Condition of Bees: There is great variety in condition of bees. On account of the low price of honey the better beekeepers left plenty of honey. At our next meeting some beekeepers will tell us that when the time for the last extraction came they concluded that it would be more profitable to leave the honey with the bees and then finish by telling us their bees came out in the finest condition in the spring. They will account for all of their success by the fact that they left plenty of honey. They will be surprised when their neighbors tell the same story of leaving plenty of honey and expecting good results to hear them say their bees were very weak in the spring and although they had plenty of stores left did not make any effort to build up. There is plenty of nectar and plenty of pollen coming in so the next thirty days may give us more surprises.

Miscellaneous: Our State Association has a fine exhibit of honey at the Golden Gate Exposition. Too much credit cannot be given the beekeepers for their fine cooperative spirit as shown by the way they have supported the Honey Promotion Committee who are responsible for the exhibit. Our beekeepers will feel more like facing financial responsibility for making this exhibit a success.

In another way our beekeepers deserve great credit; that is the whole-hearted way in which they are facing the responsibility of putting on a record-breaking convention for the American Honey Producers' League in Sacramento, November 7 to 10. Many states have already assured us more than the usual number of delegates so whether we can boast of a good honey crop or not we will be able to boast of a good crop of beekeepers at the convention.—Cary W. Hartman, Oakland, California.

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SOUTHERN CALIFORNIA, March 3.

Weather: It is delightful so far as the tourist is concerned but not up to the best for crop conditions. Rather cool with an unusual amount of high wind, which caused considerable damage to citrus fruits as well as uprooting trees and drying out the surface soil.

Market: Considerable honey has gone to market since our last letter. Prices remain low, in fact, as low and in many cases lower than at any time in our 43 years of California beekeeping. Honey we sold in 1918 brought five and one-half times as much as honey sold in February, 1939—two extremes, one too high, the other too low. There should be a happy medium somewhere between, where the consumer as well as the producer should find a happy resting place. The successful marketing of the crop continues to be the beekeepers' greatest problem.

Honey Crop: 1938 is past and 95% of the crop has left the hands of the producer. Considering the short crop the prices have been very disappointing. But when we talk with producers in other lines, like oranges, beans, alfalfa, and many others,—well, I guess that we will stay with the bees. Prospects for 1939 are fair to middling.

Miscellaneous: Here we are again in the great Imperial Valley, the Nile of America, six miles from the border line of Mexico. No water or rainfall troubles down here. With the building of Boulder Dam and the flow of the water in the Colorado River the valley is assured an abundance of water for irrigation. Beekeeping is carried on quite extensively but for some undetermined reason the crops are only about 50 per cent per colony as compared with the crops produced 25 years ago when the country was new.

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One thing that undoubtedly contributes to this condition is that now the alfalfa is mostly cut just as the first bloom appears while in former years it was allowed to fully bloom before cutting. Little if any alfalfa is grown for seed in the Valley.

Some weeds and grasses find a foothold along ditch banks and over-flow lands, but not nearly as many as one might expect considering the tremendous amount of water that is used for irrigation throughout these 600,000 acres of farm lands. Flax is again coming into prominence with 40,000 acres as compared to 11,000 last year. Considerable of it is covered with blossoms but we fail to find bees working on it.

Clover blossoms at the Experimental Station were covered with bees.

Natives here complain of the unusual amount of high wind. Even the golfers complain the wind interferes with the flight of their golf balls. Bees have wintered well and many beekeepers have already inspected all colonies for disease and condition as to stores and queen activity. Colonies with four and five frames of brood and plenty of stores should go into the spring honey flow with strength to gather a good crop.—L. L. Andrews, Corona, Calif.

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LOUISIANA, March 5.

Weather: During the period since the last Louisiana report in these pages, the temperature has been mild enough for almost daily flights. As this is being written on March 5th we seem to be setting a new record of some sort with a temperature of 84 degrees and the only feature that we can complain of is a succession of showers which have persisted for almost two months.

Crop Prospects—are good. Clover and willow are in fine shape. Berries are already producing a light flow and vervain is giving promise of doing its full 50% of our local production. Pollen is abundant and brood rearing is in full swing, many colonies are almost at swarming strength and a continuation of those showers will result in many swarms unless plenty of swarm prevention work is done.

Miscellaneous: The demand for honey has been much better than usual during the winter months. However, the heavy crop of 1938 has not been disposed of and our small local distributors find themselves carrying over too much honey. On our limited market this surplus will be more of a burden than an asset and the attempt to move this surplus is already reflected in low priced offerings to the distributors. The silver lining to this cloud lies in the fact that the distributor is demanding a "perfect" package as a prerequisite for a purchase.

It is amusing to note the many different interpretations given to grading requirements. The trouble seems to lie in the fact that each man tries to make them mean just what he would like them to mean—but he misses the real issue. No amount of "grading" can increase the real quality of any product—but it enables us to present our best selection in attractive shape. What is the best honey? The grading rules cannot tell us—it would be folly for our highest authorities to attempt such a thing, as the final judgment will always lie with the individual consumer. The main value of such rules are those regulations which outline the methods by which honey must be handled and packaged in order that the package may carry a specified grade classification. Violate these requirements and our best honey will be relegated to the "ungraded" or "junk pile" offerings.

In June, 1938, Gleanings, Mr. Mead, Battle Creek, Mich., seems to have missed something of the "spirit" of the regulations when he expresses the thought that it would be, almost, a criminal action to claim equality for light and dark honey. Color, flavor, and mineral content are the only points of difference—and the darker honeys seem to have the lead in these. The actual food value of honey does not seem to vary with either color or flavor, so the additional mineral content would seem to give dark honey the advantage. Console yourself, Mr. Mead, as the large packers are very likely to prefer your light honey as a base for their operations. Light honey can be had in fairly uniform flavor and color in almost unlimited quantity while our dark honey is quite variable and lends itself mainly to limited local markets. In time, this limitation is sure to make the dark honey producer the most envied man in the industry. He is learning to develop his home market. The savings in freight charges and the differences between wholesale prices and packer price is finding its way into his own pockets. He is learning that the real profits are not in the production field—these lie some place between the extracting room and the breakfast tables—and he is setting traps all along this road. The catch has been fine.—Geo. W. Bohne, Luling, La.

TEXAS, March 1.

Weather: February weather continued advantageous to the bees but somewhat adverse to honey plants. The weather was normal for heat but much below normal for rainfall. Dark and cloudy days predominated. The bees were inactive until the 20th of the month when a few warm days accompanied by light showers brought agarita and a few native plants into bloom. Brood rearing which had already started became very active and at the end of the month the bees are in better than normal condition.

Honey Plants: The honey plants are not up to normal. The lack of rainfall during the winter has been very adverse to the growth of horsemint seedlings. Many other of the spring plants that aid in brood rearing and to a certain extent in early honey production are still so small that one cannot predict their future. Guajillo and mesquite made a fine vegetative growth last year and according to tradition if it continues dry both of these great honey producing plants should give an early and a heavy flow.

Miscellaneous: The condition of the bees through this section is reported to be much below normal due to a lack of a honey flow last fall and the inability of the bees to rear a fall brood with which to go through the winter. The result is weak colonies and in many cases a shortage of stores. Due to cold weather it has been impossible for beekeepers to make any general examination of their apiaries. Again, according to tradition when December, January, and February are cold months, March is a spring month and a general building up of bees can be looked for by the 10th. As yet there are few inquiries by the commercial package men or buyers for live bees other than those ordered last fall. A general prediction can be made that there will be very few colonies in shape for shaking before the first of April. The package men prepared for this emergency last fall and will be able to take care of their early orders. The beekeepers are holding considerable of their 1938 honey for feeding and the majority of the honey offered for sale in cities is an out-of-state product. This equalization by transportation has established prices which vary but little through the year regardless of the local crop.—H. B. Parks, San Antonio, Texas.

MANITOBA, March 7.

Weather: The weatherman tells us we have just completed the coldest February in 45 years. It is still cold; this morning's report stated 34 below during the night. The country roads have been blocked with snow for a long time. The main highways have been kept open with great difficulty. The big snow plows go through piling the snow ten feet high on the sides but the continued low temperature has kept the snow dry and on the move and an hour after the plow passes the narrow cut is blown full again. This will continue until we get a thaw to tie the loose snow.

Honey Market: Reports of ten carloads placed last week in the provinces to the west has put a different look on the available stock. It is now difficult to get a car with a good assortment. This does not mean that stocks are short but cars made up of all 10's are not as easy to move as those with three sizes. The 2½ size is now short on this market as it has been used as a loss leader by chain and department stores for months in weekly sales, carload, jobber and retail prices on this size being the same.

A slip was made by one of the department stores last Saturday when 5's at 39c were to be a feature. The printer made it 19c and I am told that it took over 50 dozen pails to get that little matter straightened out. There are always compensating factors and this incident started a lot of people talking about honey and no doubt will help to get people to read more carefully these advertisements for fear they may miss something.

Bees: So many of our producers kill their bees that this item is not so important in this province. One man, however, reports his colonies half dead from starvation and no doubt there will be heavy losses next spring. These are the rule following good crops as the brood nest may be loaded with brood when the honey is removed and unless care is taken to replace those brood combs with combs of honey starvation follows.

Miscellaneous: All over the province the trucks are being tuned up for the trip South for package bees. The soliciting of truck loads keeps the subject of bees one of interest wherever we go. A man with whom I talked yesterday had orders for three truckloads—two he said he would bring from Louisiana and one from Alabama.

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I have not heard of anyone planning to quit beekeeping because of low honey prices. They seem to think they must keep more bees because of low prices. The demand for beekeeping literature and information is about the same as usual.

Youth Training Centers—a move to take the University to the country—has enlisted large classes this winter. Many of these schools have asked for beekeeping lectures.

Last week I spent at one of these schools where 52 young men gave me splendid attention. Just what results will come from these schools is difficult to foresee but certainly it is reaching more people than any method of teaching beekeeping that has previously been attempted. There are 500 young people enlisted in these schools this winter. They will all go back to farms in early April.—L. T. Floyd, Winnipeg, Man.

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WYOMING, March 1.

Weather: Winter set in with a vengeance the first week of November with sub-zero temperatures practically all over the State and considerable snow in many areas and early indications were that we were going to have one of Wyoming's old-fashioned tough winters but snow left about the middle of November, and while it has not been so abnormally mild as the winter of 1937-'38 we have had a very pleasant winter even at our altitude here of 6800. Reports from Forest ranger stations all along have been that the snow covering in the Mountains has been fully up to normal, and February has made up much of the shortage in the Valleys. As March and April are usually our best months for precipitation the '39 season bids well to be a little better than '38. Last summer's rains gave a new impetus to honey plants in some of the drouth stricken sections of Wyoming and greatly lessened the grasshopper and cricket menace. Owing to the more favorable average temperature bees should come through the winter in better shape than last spring.

Honey Markets: When it comes to this subject, I am usually seized with a mixture of feelings; ire, responsibility, and no small amount of despair. There is perhaps more honey in the hands of producers than there was this time last year, which under our wonderful system, said to be based on supply and demand, is a red signal to the buyer that he must buy for less, so the beekeeper will have less money to buy less goods from the dealers who buy less honey at the lesser price. One good thing is happening out of this year's unwilling market, and that is that a number of beekeepers are PUSHING honey sales locally, simply because they had to. Two outstanding points have come to my notice in bold relief, viz.; there is lots of good honey on the market poorly packed and unattractively labeled, and a whole lot more honey put out by honey packers that might have been good honey at one time but has been terribly over-heated—most of it all but caramelized and entirely divested of the honey flavor, packed in modern stream line jars with ideal labels. Can you imagine a better combination to knock repeat sales? Mr. Andrews of California in his write-up of a year ago said "Beekeepers seem to be one of the tightest organizations to get money out of to advertise their own business, we know of." The only fault I find with that sentence is the word "tightest" should have been under-scored. Dr. Beck's book "Honey and Health" coming as it does from the medical profession is one of the best pieces of free advertising the beekeeper could ask for, but I doubt if one beekeeper in ten has loosened up for a copy to read it and put some effort behind getting the book before his friends and neighbors, and especially the family physician.

Miscellaneous: When the snow drifts up to the tops of your hives you will appreciate that top entrance. I believe a ⅝" hole is sufficient if a small entrance is left at the bottom, and it should be so arranged that it is a bit indirect, to prevent too much upward draft. I have mine in a chaff tray set on top of the hives.

Had some bad luck with the thermostat on my truck and boiled away a couple of gallons of that famous antifreeze at $2.95, which added to my original purchase of three gallons. This gave additional emphasis to the hope that some day the use of honey as an antifreeze would be revived by the result of the necessary research work to make it practical, and cause Henry Ford to change his wording in his book of instructions as to the use of our product as a cooling medium. I have been told that the $2.95 product was a waste for years until it's value as an antifreeze was accidentally discovered. So there might be some possibilities for 5c honey.—Earl C. Reed, Mountain View, Wyo.

INDIANA, March 6.

Weather: Conditions thus far have been quite favorable for the development of the clovers and other crops. Plenty of rain last summer and fall has given clover a good start and, with winter precipitation above normal, the plants should come through with a prospect for at least an average crop. In this locality still more depends upon an adequate supply of moisture in late spring with fair weather in June.

Market: Local sales of extracted honey have been better than usual at this time of year. Nevertheless, owing to the exceptionally large crop last year, there is still a considerable amount in the hands of producers. Those who have extracted honey on hand should watch for the least indication of fermentation on the approach of warm weather and heat at once to 150 degrees. Honey properly ripened before extracting will not need treatment if kept in a cool place. Beekeepers who get panicky and dump their product on the market are not helping the industry. It's better to hold some of it over.

As for comb honey, there seems to be almost no demand. What little comb is sold is being disposed of at less than cost of production. With the gradual lessening demand during the last few years, one is almost tempted to believe that it is on its way out.

While we sometimes ship honey on orders received from Maine, Florida, California and other distant states, it is not unusual to find southern and western honey on the shelves of local grocers. One fellow several hundred miles away to whom I have shipped tons of honey, is now selling it in glass jars in our stores at cut prices. Perhaps he is the better salesman, or is it that honey is improved by being shipped over the road?

Miscellaneous: Mr. James E. Starkey, secretary of the Indiana association, and chief inspector, is doing good work in contacting beekeepers in meetings in each county during the winter season as well as by sending out a monthly beeletter to all members of the State Association. Instruction thus reaches many who ordinarily do not read bee journals or otherwise become informed as to better methods.—E. S. Miller, Valparaiso, Indiana.

VERMONT, March 6.

Weather: Winter so far in Vermont has been a little above average in temperature and precipitation. We had about 12 days of below zero, the lowest being about 20 below. Mixed in through the winter has been snow, rain, and thaws. Snow covered the ground most of February. March, coming in like a lamb, with rain and warm south winds, has melted most of the snow in the Champlain Valley. However, it does not mean that spring is here. We have only to remember that it was 30 below zero the second week in March of last year and we can expect March to start growling and showing its teeth any day.

Bees: Everything seems to indicate bees are wintering well. They had a short flight two days this winter. While in some colonies a large number of bees came out for a flight, in other colonies not a bee came out, but stayed inside and only a very low hum indicated life inside.

Though it is over a month before bees can gather pollen, brood rearing must have started in most of the colonies. When we examine bees early in April we almost always find young and hatching bees, showing brood rearing started early in March regardless of what the weather may be at that time. Very often the temperature in early March is zero or colder. Somehow, bees seem to know when spring is just around the corner.

Prospects: To date, clovers should be in good condition. The hardest part of winter is yet to come for honey plants, the freezing and thawing period between winter and spring. With snow now almost all gone in the Valley, clovers will be exposed during this period. We hope a nice warm blanket of snow will come to protect them. After last year's short crop, we are counting at least on an average crop this summer.

Miscellaneous: We haven't felt very prosperous this winter due to our short crop and a big crop elsewhere that weakened our market. We do feel happy over the fact we had better skiing this winter than in the past three winters. My oldest youngster, now seven, has started in this winter winning his first ski races, making his dad so bold as to think he may be on the Olympic Team some day. There's still enough snow on the mountains for skiing every week-end in March at least. It is certainly hard to

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understand why so many people do not like snow. Most ski bugs are heartbroken when it leaves us, and impatiently live through the summer waiting for the next snow flake to fall. We like summer just as much so we can be with the bees again.— Charles Mraz, Middlebury, Vt.

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ONTARIO, March 7.

Weather: The law of averages seems to be asserting itself again insofar as our winter weather is concerned. The weather last fall was very mild and the early winter was also much above our average temperature. Last year at this date the weather was quite balmy. Today we are having a blinding snowstorm with a temperature about 15 above and a strong North wind. February brought steady cold weather with an abundance of snow. A year ago at this time the fields were practically bare and today snow is piled high in some places. It is quite apparent that my wish for a day when bees could have a flight, as expressed in last Gleanings, has not been fulfilled and is not likely to be for some time. Most apiaries are pretty well covered with snow and I have been at only one yard during the past month or more. This apiary is in a clearing in the center of a five-acre forest and there is no drifting to speak of. Snow was about 15 inches deep all around the hives and the bees appeared to be all right insofar as I could judge by external conditions. I have no reports on wintering conditions so cannot make even a guess as to how bees will come through.

Market: Honey is moving slowly at prices no better than at last writing. It appears quite likely that there will be a carry-over from last season and buckwheat in particular continues to be a hard product to move at anything like a fair price. If the 1939 crop should be short a small carry-over might be a good thing. If the 1939 crop should be big—well, that is another story. The marketing problem appears to be acute, and the pity is that no one knows just what to do, or, if they do know, they lack something necessary to solve the problem.

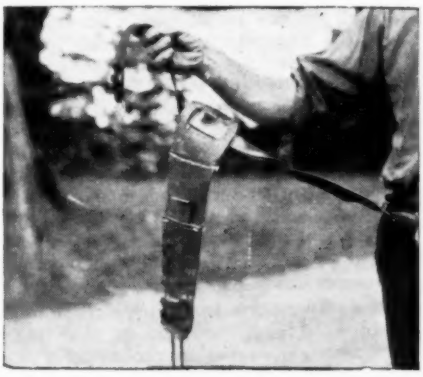
In a well written article in the Canadian Bee Journal for February C. C. MacKinnon, one of our younger beekeepers, discusses this problem and after reading what he has to say I was impressed with the witticism credited to Mark Twain, I believe, when he said that everybody was always complaining about the weather but never had he known anybody to do anything to remedy the situation. Mr. MacKinnon is, I believe, a graduate of Queens University so he is quite capable of placing the problem before readers, but what we want is a practical solution of the problem that is admittedly too difficult for people of average ability or less, like the writer of these notes, to solve. For some time after Mr. MacKinnon left the University he was employed by an engineering sales organization of a very well known Canadian company. Let me quote from his article: "They depended entirely upon the working cooperation of rival companies, in order to realize a profit on their work. When bidding on the same job with the same equipment, rival companies would submit bids for the same amount. Thus the company which obtained the order would be assured of a fair profit. Had they used a 'cut-each-others-throat' basis for bidding, it would have resulted in a profit for no one." Suggesting that cooperation among beekeepers will solve our marketing problems, he says "Determine a price level and stick to it". Any sane producer would admit that the solution is fine if it could be made to work. But how to make it work, that is the question. The ideal arrangement made by the engineering companies he mentions seems close to an infringement on laws in force both in Canada and the U. S.

Possibly the number of firms competing for these jobs might be numbered on the fingers of one hand so the necessary "getting together" could be easily arranged. As an example, let us consider the manufacturers who make our honey containers. They have always used me fairly so this is not carping criticism. Three large firms supply practically all the tin honey containers made in Canada and I suppose practically the same thing can be said about the United States. Get the price lists of these different companies and compare them. Not a fraction of a cent difference, as a rule, in any of the quotations on any article listed for sale. With three parties negotiating that is a simple matter. But when it comes to applying the same procedure to **many thousands** of beekeepers scattered all over the country and made up of almost every conceivable kind of individual—what a different problem! ! As already intimated, a man of my mental calibre has no constructive solution in sight and I can only hope that a Moses will appear from somewhere to lead us out of the wilderness in which we are all wandering about aimlessly at the present time.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

Hive Tool Holster

If you don't mind wearing a bit of extra leather, a holster like the one pictured is a worth-while accessory to your outfit. Its advantage is that after you have used it a short time, so as to acquire the habit, you automatically replace the hive tool in its holster after using it, instead of laying it down somewhere else, and thus it is always at hand when you get ready to use it the next time. When the hip pocket is used for this purpose the hive tool not only cuts through the cloth and wears a hole in the pocket, but is likely to fall out at any time and be lost. Many operators wear high-top shoes and carry the hive tool in the top of the shoe, which is all right when it is not in frequent use; but placing it there is just enough bother so that one does not do it automatically, with the result that he often lays it down somewhere else and spends a lot of time hunting for it. The holster solves these difficulties. It is especially useful when moving bees for orchard work. The holster can be easily made from the leather of a worn-out high-top shoe. The mouth should be wide, and flared outward, with the lower part tight enough to provide the necessary tension to keep the tool in place. Its usefulness would be still further increased by addition of a pocket for queen clipping scissors.—Walter H. Hull, Bath, N. C.



After you get used to the motion you automatically replace the hive tool in a holster of this kind, so that it is always at hand when you want it.

Honey Marketing Observation

The new type of Super Service Stores, or the "self-help" kind, sell about five times as much honey as the ordinary type of grocery store. Reason—they display large quantities of honey on shelves and consumers go by the shelves and see the the honey. That constitutes a silent salesman and induces the customers to buy. We sell more honey to one Super Service Store than to a dozen corner grocery stores. Moral—it pays to display the honey in large quantities where the customer can see it.—H. J. Rahmlow, Madison, Wisc.

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Frogs Drive Away Bees

There is a pond near my home in which there are a few frogs. As soon as my bees alighted on the water a frog would jump up and catch it. These frogs were stung frequently, but it seems the stings had no effect on them. As a result my bees deserted the pond and traveled quite a ways to a distant water spot.—Irwin Firschein, Brooklyn, N. Y.

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Killing Grass Around Hives

For the past several years I have been using an efficient time and labor-saving method in controlling growth of weeds and grass about my bee hives, at a cost of material of about two cents per hive per season. Sodium chlorate, one pound to a gallon of water, applied with a sprinkling can or sprayer at the rate of about one gallon to each square rod will keep all vegetation killed. One application in spring will keep the ground bare until fall. It is best applied on a cloudy day but should not be applied when vegetation or ground is wet from rain or dew. Sodium chlorate will not burn, but clothing, hay, straw, unpainted boards, etc., that have been wet with this solution and allowed to dry may be ignited by hot sun, sparks, or friction. Wearing of boots is a safe precaution. Applying on a cloudy day also lessens the possibility of stirring up bees.—Henry B. Ward, Tiffin, O.

[Sodium chlorate can be purchased from Oldbury Electro-Chemical Co., Niagara Falls, N. Y.—Editor]

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Asked and Answered

Amount of Sugar in a Pail of Syrup

Question.—How much granulated sugar does a ten-pound pail of sugar syrup, two parts sugar to one part water, contain and should food requirements be based on the amount of syrup or the sugar, fed?—Wm. Kruse, Jr., Ill.

Answer.—Of course, the syrup would contain 6⅔ pounds sugar and 3⅓ pounds of water, assuming that the weight and measure would be the same. But to bring the syrup down to the density of honey the bees would have to reduce the water content to apportionately 17% water or less. Some honey runs only about 15%. The food should be based on the amount of sugar rather than the water. To answer your last question it is well to feed as many pounds of dry sugar as the colony lacks in stores.

Royal Jelly

Question.—I am much interested in bees and I want to know about the royal jelly the bees gather and feed to a baby worker which makes it become a queen. Will you please tell me what the chemical analysis of this royal jelly is? And from what do they gather this substance?—Mrs. Basil S. Armour, California.

Answer.—Royal jelly is a secretion from certain glands in the nurse bees. The nurse bees eat honey and pollen and secrete the royal jelly, sometimes called bee milk. Herr von Planta, a German investigator, made analyses of the royal jelly and the larval food fed to workers and drones. He found the amount that the queen larvae received the richest food, the chemical composition being as follows: protein, 45.15 parts, fat, 13.55 parts, and sugar 20.39 parts. Aeppler, an American investigator, has gone farther into detail in the chemical analysis of larval food, an article by him having been published in Gleanings in Bee Culture for March, 1922. If you have access to the back volumes of this journal you may be interested in reading Mr. Aeppler's article.

Uniting Bees by Means of Bee Escape

Question.—Will bees go out of a super into another colony through a bee escape and unite peaceably? I believe this is practiced some.—Iver C. Andersen, Minn.

Answer.—We have not tried this enough to know how it actually works but it seems as though it should work, especially during a honey flow. One year we tried uniting three-pound queenless packages with colonies slightly below par in strength, to give them a boost for the honey flow. We fed the packages sugar syrup, then placed each package, with the cover of the package removed, in an empty super, above the inner cover with the block removed. There was a honey flow on. Next day we found a considerable number of dead bees in front of each hive in which uniting had been attempted. And so, this method didn't work out so well. Apparently we should have placed bee escapes in the inner covers, instead of leaving the holes open. At times we have gorged a queenless package with syrup, then dumped the bees in front of the colony during a honey flow, with no fighting or dead bees resulting. Perhaps some of our readers can throw some light on this matter.

Top Supering for Comb Honey

Question.—Do you advise top supering for comb honey production?—L. R. Bloom, Wisc.

Answer.—A few beekeepers from over the country have written us that they have been successful in producing comb honey by the top-supering method. Not until last season did we give this method a good try-out. We used 85 colonies for producing comb honey and placed supers on top, as needed, instead of underneath, or directly above the brood chamber. We have come to the conclusion that top-supering for comb honey is feasible, provided, of course, colonies are very populous and conditions are favorable for honey production. Unless conditions are favorable it is a sheer waste of time to attempt comb honey production. What we like about top supering is that the bees fill and cap the sections that are needed for the crop and in our opinion there are fewer partly filled and unfinished sections with top-supering than with the other method. It is, of course, necessary in top-supering to provide additional supers in ample time to avoid congestion which is said to be the prime cause of swarming. Giving new supers on top, in plenty of time, before they are actually needed, is one of the secrets of success, either in comb or extracted honey production.

Moving Bees Short Distance

Question.—I want to move an apiary of 25 colonies about 200 yards from its present location. In my locality we seldom have a week during the winter that the bees do not fly some. As a rule, they are seldom held in more than three or four days because of cold. When would it be wise to move them this short distance? By such a short move would

not the colonies become weakened by returning to the old stand?—D. W. Lockey, North Carolina.

Answer.—It would be feasible for you to move your hives of bees any time during the next two months, even though bees in your vicinity fly every three or four days. So long as you leave nothing in the way of empty hives on the old location, the old bees that might return from the new location to the old location would have no hives to enter and would doubtless return to the new location. A few years ago we moved a large apiary in the spring of the year, a short distance. Many of the old bees returned to the old location after being moved to the new location, but not finding any hives to go into, they soon returned to the new location. If you will do your moving rather late in the evening so that the bees, after being placed on their new location, may have a chance to settle down during the night, they will then work out of their hives gradually the following morning and will doubtless mark their new location.

Selling Honey Locally

Question.—I have about two tons of good honey that I would like to sell in small lots locally. Have you any suggestions for finding buyers?—J. L. Walker, Ind.

Answer.—The big factor in selling any commodity is letting people know you have it for sale, also telling people about the good qualities of the article you offer. **To sell you must tell.** Why not put a small classified ad in your local newspaper each week announcing the fact that you have good quality honey for sale, naming the price. You should have a honey sign in front of your dwelling house so that prospective buyers may find you easily. Refer to the honey sign and your street number in your ad. Some beekeepers are selling direct from the honey tank, weighing the honey into containers furnished by customers.

Bacillus Alvei

Question.—Is **Bacillus alvei** a spore-forming bacteria? Is it associated with the ropiness sometimes found in European foulbrood?—Iver C. Andersen, Minnesota.

Answer.—**Bacillus alvei** was proved by White and others not to be the cause of EFB. White attributed it to **Bacillus pluton**, which is not a spore former, while **Bacillus alvei** is a spore former. Moreover, recent work has shown that possibly **Bacillus pluton** may be a phase in the life cycle of **Bacillus alvei,** but I feel that it has not been sufficiently proven to state definitely that **Bacillus alvei** is the cause of European foulbrood.—A. P. Sturtevant, Bacteriologist, U. S. Bee Culture Laboratory, Laramie, Wyoming.

Newspapers Playing Up Fatal Effects of Bee Stings

Question.—This afternoon while reading my paper I ran across another one of these headlines entitled, "Sting Kills Boy". The article reads as follows: "Pottsville, Pa., Nov. 15, 1938.—Warren Zimmerman, 14, died of blood poisoning as the result of a bee sting. Physicians said that the bee probably had been gathering the nectar from a sumac plant and injected the poison into the boy's body." During the past six months I have been collecting these articles of "Stings Kill Mr. Doe." I have 17 some such articles which I think are a little far-fetched. Am I correct in this assumption?—Ed. Laguna, Calif.

Answer.—There is no question but that the newspapers, anxious for the sensational, have been overplaying deaths from bee stings. As we have pointed out, most of the cases of alleged fatal effects from stings are due to other causes. Admitting that a few persons perhaps lose their lives from the effects of bee stings, the number is so very small that it does not begin to compare with the number of deaths occurring on farms in the handling of live stock. The inference might be drawn that because a few people lose their lives through bee stings, we should quit the business, but if that rule were applied to the automobile business we should have very few good roads and few people driving from one part of the country to another.

Brown Sugar Unsuitable for Bees

Question.—Do you consider brown sugar as good as white granulated sugar for feeding bees?—W. L. Moore, Ohio.

Answer.—We advise you to use nothing but the best grade of white granulated sugar for making syrup for bees. We have tried brown sugar. The bees wouldn't take the syrup and it soured.

Bonnier's Experiments

Question.—What do Gaston Bonnier's experiments with Lycium tend to prove?—John Hall, Va.

Answer.—I have only a general reference concerning Bonnier's experiments, but I believe the results summarize in a general way the information which you desire. The following is quoted from the Iowa Geographical Survey bulletin No. 7: "Bonnier called attention to the fact that nectar secretion is greater in the same species at high latitudes and altitudes, than at low when the species grow normally in both latitudes of altitudes compared, and furthermore, that maximum and minimum daily temperasecrete nectar plentifully in Norway and in the Alps." He has also stressed the importance of the deviations between maximum and minimum daily tempera tures, as well as in the greater range of humidity of air at high altitudes and latitudes. This seems to be more favorable for nectar secretion.—W. E. Dunham, Extension Specialist in Bee Culture for Ohio.

XUM

A Confab

Free For All Discussion of Timely Topics

Where Are We On Winter Entrances?

It looks as though nothing is definitely settled in this world. Matters are in a state of constant flux. The old question, "What is truth?" is as much alive today as it has ever been.

Since last November this department has been given over largely to the question of hive entrances. There have been many opinions and experiences given by beekeepers in various parts of the country and the concensus of opinion appears to be that entrances different from the commonly used bottom entrance have some merit.

Apparently there needs to be a clarification of terms used with reference to hive entrances. One term may mean one thing to one beekeeper and another thing to another beekeeper, thus causing confusion.

As John Connor has well said in the March Confab, "There is not as yet a general definition or general understanding of what is meant by 'top entrance'. There is no official recognition of the subject, yet there is much discussion and many are experimenting, which proves the problem is very much alive. When the principles are better known and work is conducted along more co-ordinated lines progress will be much more rapid. A thorough study of beeline entrances, both top and bottom and their relationship to the ventilation and needs of the bees might prove fruitful to the industry."

Go Slowly on Changes

Our suggestion to the many beekeepers over the country, in the North, is to go slowly on making any changes in your hive entrances. If your bees are not wintering well in hives with the regular lower entrances you might try out on a small scale a few top entrance hives to see how they work in your locality. One type of top entrance hive is described and pictured on page 604, October, 1937, Gleanings by H. A. Schaefer, Osseo, Wisconsin.

In our apiaries we now use a middle entrance, a ⅝-inch hole bored in the middle to each upper brood chamber or food chamber, in addition to a small bottom entrance ⅜" x 1". We are now thinking that the bottom entrance could be dispensed with, leaving only the middle entrance during winter months. We hope to give the middle entrance only a further trial. This entrance occurs near the cluster of bees and they can easily get out to fly. Moisture within the hive can escape more easily than it can through a bottom entrance only.

This excess moisture in winter is the crux of the winter entrance problem. Excess moisture in hives containing colonies of bees is reduced by ample protection or insulation, also good windbreaks for apiaries, since well-protected bees consume less honey. We are told that when honey is consumed in supplying heat and energy to the bees, it is broken up into carbon dioxide and water, also that nearly two-thirds of a pint of water is given off in the form of water vapor for every pound of honey consumed. This means that approximately one gallon of water in the form of water vapor is given off for each gallon of honey consumed. This seems almost incredible until we realize that honey weighs around 12 pounds per gallon and water about 8 pounds.

Large Amount of Packing Needed

In the North a large amount of packing is required to prevent bees from consuming an abnormal amount of honey in order to avoid abnormal moisture within hives. It seems that most beekeepers are unwilling, because of seemingly unwarranted expense and labor, to supply this necessary large amount of packing. Consequently such beekeepers are resorting to the top and middle winter hive entrances for facilitating the escape of excess moisture.

There is another angle to this moisture and packing problem, viz., that if the beekeeper doesn't give the bees a chance to seal the inner cover tightly, early in the fall, moisture will seep into the packing above, when only the bottom entrance is used. Soggy, partly frozen packing material is worse than no packing at all. The top, also the middle winter entrance, help to obviate this condition. Bees appear to be able to stand a dry cold atmosphere better than a moisture-laden, cold atmosphere.

There are other phases of this winter hive entrance question that could be discussed. If one of our Government beekeeping field stations would undertake the solution of this winter hive entrance problem in order to get the facts and disseminate authentic information, this would save costly individual experimentation along this line.

Talks to Beginners

In previous talks I have mentioned "bee fever", a peculiar malady common among beekeepers, especially at this season of the year. I had a touch of it a few weeks ago when my good friend E. R. Root and I were visiting some of our apiaries to determine the condition of colonies. Even as we approached the first apiary I experienced the familiar symptoms, a desire to see the interior of hives of bees and to examine combs of brood.

The sun was shining brightly but the air was quite chilly, in fact, too chilly to give colonies a thorough examination. However, we did want to find out the condition of the bees so we opened up a hive here and there and from a few hives I removed combs from the center of each to examine the brood. All colonies examined were in excellent condition and each had a small patch of brood (about the size and shape of one's hand) in from one to three combs. Apparently a sufficient amount of young bees were emerging, to make up for the loss of old bees that were dying. It should be said that the colonies examined were well provided with stores last fall, in fact, each colony had a super of honey (or food chamber) in addition to the honey in the brood chamber.

Great Abundance of Stores Needed

The foregoing observations regarding condition of colonies, abundance of stores, etc., are intended especially for those of our readers who already have bees and are about to examine colonies. Occasionally I receive letters from beginners who are trying out the food chamber and are worrying about the fact that the bees during the winter months have not eaten nearly all of the honey provided in the food chambers.

Early last spring I was attending a bee meeting in an adjoining county early in April. One beekeeper said, "What will I do with all the honey in my food chambers? The bees have hardly touched it." I replied, "Don't worry about that, my friend. Just wait until about June 10 and you will find that your colonies will have converted those combs of honey into combs of brood. About one comb of honey is needed to produce one comb of brood."

That was news to this beginner. Even more experienced beekeepers fail to realize the importance of reserving a superabundance of honey and pollen for each colony during the spring months. Colonies that do not have an adequate supply of stores prior to the main flow are not sufficiently populous in bees to take full advantage of the major flow and thus a great part of the available crop is lost. Not until the rank and file of beekeepers throughout the country leave an ample amount of stores for bees will maximum crops of surplus honey be harvested. More bees die from starvation during April in the North than from any other cause.

Examining Bees

There is a right way and a wrong way to open hives to examine bees. They resent rough handling but they will submit to careful and intelligent handling. Bees are something like humans in this respect.

There are at least three things necessary for manipulating hives of bees—a good bee veil, a hive tool, and a bee smoker. Some wear bee gloves—those who are afraid of stings.

The Brave Beekeeper

Occasionally we meet a beekeeper who tells us he never uses a bee veil. A few years ago such an individual visited our home apiary while our men were working the bees. When he saw the men wearing bee veils he laughed loudly and said that he wouldn't think of wearing a veil. His bees never stung him, so he said. Our bees were a bit "owly" that day and one of the men suggested that he put on a veil, but he wouldn't. He was brave, in fact, he stood directly in front of one hive, a very foolish thing to do. A bee flew near his face. He swatted at it. Another bee approached him. He did some more swatting. More bees circled around his head until one stung him in the face. He suddenly lost his bravery and started to run. He didn't even say "good-bye", and the last we saw of him

his arms were fanning the air like a windmill. Somehow we couldn't feel very sorry for him.

How to Manipulate a Hive of Bees

Before opening a hive the bee smoker should be well lighted. There are various kinds of smoker fuel, such as oily rags, burlap, or greasy waste. It is well to light the smoker before putting on the veil, especially if a cotton veil is used. It is easy to burn a veil with flames from the smoker being lighted.

Never stand in front of a hive when bees are flying. If the hive has an outer cover, remove it, then insert the hive tool under one corner of the inner cover and blow a little smoke through the small opening. Wait a few seconds, then remove inner cover and apply some more smoke over the frames, but not too much.

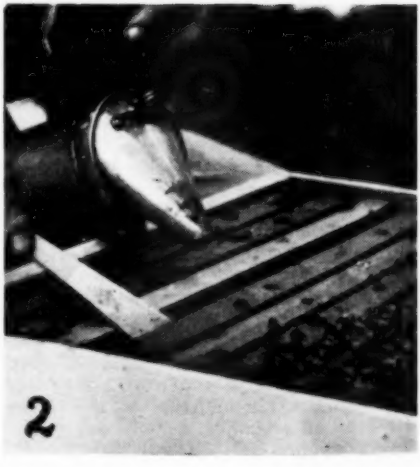
To remove the first frame shove the hive tool down between the end bars of the nearest frame and the hive wall and pry the frames over to the opposite side. Next, separate the nearest frame from the adjacent one and remove the nearest one carefully. Do not make any quick moves. After examining the comb stand it on end at the front corner of the hive so as to not obstruct the hive entrance. The next frame should be removed and examined, then placed back in the hive at the nearest side. The remaining frames should be removed and combs examined in like manner. Before placing the first frame removed back in the hive, the frames in the hive should be pushed over, all at one time, to the further side to make room for the first frame. Any extra space not occupied at the near side of the hive should be divided evenly at each side of the hive.

If the colony occupies a double-story or food chamber hive, the top super, or brood chamber should now be lifted off and placed crosswise of the inverted outer cover to avoid killing bees adhering to the bottoms of the frames. The lower brood chamber should then be examined in like manner, then the upper story returned to its place and the hive cover put on securely.

It should be understood, of course, that colonies should be examined only on warm days when bees are flying freely.

What to Look for Inside of Hive

There is a wide variation in localities.



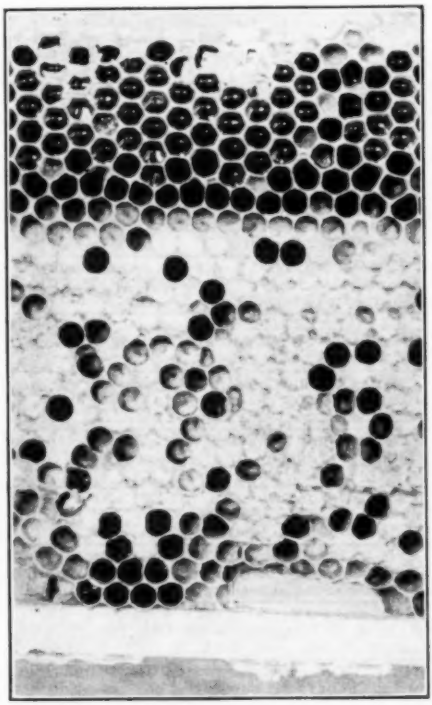
1. Inserting hive tool at corner of inner cover, holding smoker in readiness.

2. Pushing frames over with hive tool in order to remove one of the combs. Note the smoker held in the left hand.

3. Holding the smoker between the knees while the comb is held in both hands for inspection.

Colonies have reached their peak of strength in some of the Southern States like Florida, Louisiana and Texas, and have stored considerable surplus honey. In the far North colonies have little brood, while in the latitude of Medina normal colonies may have brood in from three to six combs.

The combs on the sides or near the walls of a hive should contain considerable sealed honey. Some of the combs in the center of the brood chamber should contain some brood in all stages,



This picture shows honey at the top in sealed and unsealed cells, and larvae at the bottom, sealed and unsealed.

unsealed and sealed, as well as honey in the upper portions. Cells adjacent to the brood will contain pollen of various colors. Balls of pollen will be seen on the legs of the worker bees. This pollen is placed in the cells of the combs to be used later as larval food. Fresh nectar may also be seen glistening in the cells.

There are three kinds of cells, worker and drone cells, also queen cells, which are built before a swarm issues. The worker cells are about 1/5 inch in diameter. The drone cells, which are about ¼ inch in diameter, are usually found in the lower portion of the combs and are easily detected because they project somewhat beyond the general surface of the worker cells. The queen lays fertile eggs in worker cells and unfertile eggs in drone cells. Twenty-one days are required for the development of worker bees from eggs and twenty-four days for drones.

Checking Colony Requirements

The object of examining each colony in the spring is to find out if the three requirements, **food, comb space,** and **protection** are present. There should never be less than fifteen or twenty pounds of honey (the equivalent of three or four full standard combs) in each hive at any time during the spring months. Some save combs of honey for spring feeding but if such combs are not available sugar syrup should be fed, as described in the former talk. Those who use deep food chamber hives need not worry about stores.

In some regions supers will be needed to supply **comb space** for incoming nectar and brood rearing. When considering **protection** it is inadvisable to remove winter packing from hives until settled warm weather comes. Hive entrances should also be kept reduced during cool spring weather in the North.

What to Do with Weak Colonies

A weak colony that does not cover more than three or four combs on a cool morning should be strengthened with a two-pound queenless package. To unite the queenless package with the weak colony, feed the bees in the package all the sugar syrup they will take, by painting it on the wire screen of the shipping cage with a brush or cloth. Set the cage of bees, with cover and feeder can removed, inside the hive, after four empty combs are removed temporarily. The bees in the weak colony will not object to the queenless bees full of sugar syrup. This addition of the package bees will boost the weak colony up to normal strength in time for the main flow.

Replace Failing Queens

A few queens that appeared to be normal in the fall may be found to be failing in the spring. Such queens can be detected by their weak wobbly appearance and the scattered appearance of the brood. Such queens if left in the hives will be superseded and this would mean a loss in brood rearing at the most critical time during the season. Failing queens, if found, should be removed and replaced with young vigorous laying queens secured from a reliable breeder.

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Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 15th of month preceding.

HONEY FOR SALE

CHOICE CLOVER honey in 60's. 6½c. John Bour, Tiffin, Ohio.

WHITE CLOVER, also light amber. Lewis Klaty, Carsonville, Mich.

FINEST clover honey, new sixties. W. G. Roediger, Kettlersville, O.

FANCY clover honey, case or quantity. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

FINEST clover extracted by case or ton lots. Jones Apiaries, Sauquoit, N. Y.

REDUCED PRICES on comb and extracted. Write H. G. Quirin, Bellevue, Ohio.

CLOVER and light amber honey. Sample 10c. Frank R. Parmelee, LeRoy, N. Y.

FINEST CLOVER extracted honey. 60-lb. cans, 7c. Irvin Van Devier, Medina, O.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, O.

LIGHT HONEY in 60's. Also light or amber in pails. J. L. Faulk, Byron, Mich.

SUPERB clover honey, extracted. Priced to sell. C. J. Baldridge, Romulus, N. Y.

CHOICE clover honey, new 60's case, $7.20. Sample 10c. Owosso Dairy, Owosso, Mich.

CLOVER comb and extracted. Quotations on request. Howard Grimble, Holcomb, N. Y.

FINEST QUALITY white clover honey. New 60's. Orval Dilley, Grand Ledge, Michigan.

CHOICE CLOVER and light amber honey in 60's. The Hubbard Apiaries, Onsted, Mich.

MICHIGAN'S finest well-ripened white honey in new 60's. Jay Cowing, Jenison, Mich.

FOR SALE—Fancy Iowa white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

CHOICE white clover and light amber extracted honey in new 60's. Noah Bordner, Holgate, Ohio.

FANCY clover comb in window cartons, $3.00 per case; No. 1, $2.75. H. R. Shelton, Parma, Mich.

FINEST QUALITY clover honey. Also light amber. Case or carload. Don Barrett, Howell, Michigan.

MICHIGAN'S finest white clover honey, 5½c. Choice buckwheat, 4½c. New cans. No disease. You will be pleased. John McColl, Tecumseh, Michigan.

WHITE clover and buckwheat honey in 60's. Finest quality. A. B. McHenry & Son, Stillwater, Pa.

CHOICE WHITE clover honey in 60, 10 and 5 lb. tins. Sample free. Harry T. Gable, Romulus, N. Y.

NEW CROP CLOVER extracted. Let me know the quantity you can use. Emery Horton, Holcomb, N. Y.

BEST CLOVER in new 60's, 7c; liquefied, 7½c; ten cans or more, ½c less. E. S. Miller, Valparaiso, Indiana.

LIGHT CLOVER honey, finest quality in new sixties. Case or carload. Leland Farnsworth, Davison, Mich.

FANCY TUPELO and light amber honey for sale, barrels and 60's. Marks Tupelo Honey Co., Apalachicola, Fla.

A-1 WHITE CLOVER extracted honey in 60's. State your wants. Leonard S. Griggs, 711 Avon St., Flint, Mich.

ASK FOR our new lower prices on our best Michigan clover honey. E. D. Townsend & Sons, Northstar, Michigan.

COMB and extracted honey. Best quality white, also amber. Write for prices. H. E. Crowther, Cass City, Mich.

WE BUY AND SELL ALL KINDS COMB and extracted, carloads and less. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

FINEST QUALITY white clover honey, $7.20 per case, 120 lbs. Sample 10c. Arthur Thayer & Sons, Freeland, Mich.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

CHOICE white clover and light amber extracted honey in new 60's, by case or ton lots. R. J. Williams, Attica, Ohio.

FINEST QUALITY White Clover Honey—in new 60's, 60 lbs., $3.90. Quantities less. H. B. Gable, Romulus, New York.

WELL ripened clover or buckwheat in 60, 5, and 2½ lb. tins. Case or truckload. Earl Rulison, Route 1, Amsterdam, N. Y.

FINEST EXTRACTED CLOVER and Buckwheat honey in any quantity. Sample 15c. F. W. Summerfield, Grand Rapids, Ohio.

FANCY white clover extracted honey, can or carload. Price on request. Sample, 15c. Jos. H. Hoehn & Sons, Ottoville, Ohio.

COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

FOR SALE—48 cases Fancy Comb, wrapped, $3.00 per case, White Extracted and light Amber, at lower prices. N. B. Querin, Bellevue, O.

BEST quality white extracted honey in new sixties. One case or a carload. Prices reasonable and satisfaction guaranteed. Harry C. Kirk, Armstrong, Iowa.

SELECT LOTS—Comb and extracted white, light amber and buckwheat. Prices right. A. I. Root Co., 224 W. Huron St., Chicago, Ill.

CHOICE white sweet clover, also extra light amber honey in new 60-pound tins by the case or carload. Dadant & Sons, Hamilton, Illinois.

WELL RIPENED clover in 5's and 60's; fine buckwheat in 5's, 60's, and 160 pound kegs. Sample 10c deducted from order. Coggshall & Son, Groton, N. Y.

CLOVER HONEY FROM CLOVERDALE. Ohio's finest clover extracted in 60's. Sample, 10c. Prices upon request. The Cloverdale Apiaries, Cloverdale, Ohio.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Co., 1360 Produce St., Los Angeles, California.

FANCY WHITE TUPELO HONEY—For sale. Guaranteed non-granulating; also light amber mixed flower honey. Bargain Priced. Fred Hoffman, Apalachicola, Florida.

HOWDY'S HONEY——Fine quality white, clover, also buckwheat and light amber mixed extracted in new sixties. White, clover Honey Hunks. Howard Potter, Ithaca, Michigan.

COMB HONEY—Fancy white clover, $2.75 case; Fancy mixed, or amber, or buckwheat, $2. White Clover, extracted, 6½c; Buckwheat, 5c; Amber, 5½c. C. B. Howard, Geneva, N. Y.

FOR SALE—Fine clover honey, also fall flowers amber honey, in 60-pound cans. Prices and sample for the asking. Tons of each kind. Let us serve you. W. S. Earls, New Canton, Ills.

HILTNER'S quality white clover honey is really a fine honey, produced in modern apiaries, extracted with finest equipment, packed in new cans. Prices on request. Ray Hiltner, North Creek, Ohio.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

FIVE TONS white clover honey. Fairland Apiaries, 260 Park Dr., Dayton, O.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 712 Kossuth St., Columbus, O.

WANTED—Comb, chunk comb, white and light amber extracted honey. Any amount. Central Ohio Apiaries, Millersport, Ohio.

WANTED—Carlots of honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—White and amber extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wisconsin.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Apiaries, 12213 12th St., Detroit, Michigan.

→ HERE IT IS ←

HILTNER'S QUEEN EXCLUDER

The Queen Excluder approved by the commercial beekeepers of northwestern Ohio.
It is spaced 170/1000 inch between wires for honey producing bees, and don't be fooled, we know, normal queens do not pass through this space.
We have manufactured this Excluder for two years and have sold thousands of them, and not one beekeeper has complained about queens going through them.
The construction of this excluder is wood and wire, with eight wires per section, the wood frame is a masterpiece for strength without bulk.
Try a carton of ten for $6.00, ten-frame size. We know you will be pleased.

HILTNER'S WHITE CLOVER APIARIES
North Creek, Ohio

Cash Paid

For extracted honey; cars and less than cars. Mail samples and best price delivered Oconomowoc.

C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Get Running's Bees

And Get Honey—They Satisfy

The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload. All Italian Stock. Service guaranteed. Two-pound package with choice untested Queen, $2.45; Three-pound package with choice untested Queen, $3.15; Choice untested Italian Queen, 75c; Choice tested Queen, $1.50. 10% discount on 50 or more. 15% discount on 500 or more.

David Running Apiaries
Sumterville, Alabama

NEW SUPER-QUALITY KITSELMAN FENCE

Heavier, thicker, tougher galvanizing. Finer, longer-lasting Copper-Bearing Steel. **Low Factory-to-You Prices. WE PAY FREIGHT.** 100 styles and heights Farm, Poultry and Lawn Fence; Steel Posts, Gates, Barb Wire, Paints, Roofing. Write today.
KITSELMAN BROTHERS
Dept. 21 **Muncie, Indiana**

XUM

Queens and Package Bees

Productive 3-band Italians
Shipped on date specified

Full weight live bees at destination
Satisfaction Guaranteed
Several Fast North-bound trains daily

Untested queens, ...$0.75
2-lb. pk. with young laying queen 2.45
3-lb. pkg. with young laying queen 3.15
Each additional pound of bees ..... .70
For queenless package deduct price of queen.
Instructions for hiving package bees and Health Certificate with each shipment.

W. E. PLANT
HATTIESBURG MISS.

THREE BAND ITALIANS
PACKAGE BEES AND QUEENS
Select Queens
Young Bees
Full Weight
Prompt Shipment
No Drones

Queens $0.75
2-lb. pkg. young queen 2.45
3-lb. pkg. young queen 3.15
Discount on large orders.

Brooks County Apiaries
Quitman, Ga.

1939 Golden and 3-Banded Italian Bees and Queens

2 lbs. bees, 1-Comb brood and queen, each, ...$2.45
2 lbs. bees, 2-Comb brood and queen, each, ... 2.85
3 lbs. bees, 2-Comb brood and queen, each, ... 3.55
2 lbs. bees and queen, combless, each, ... 2.45
3 lbs. bees and queen, combless, each, ... 3.15
Each additional pound bees, ... .60
Each additional comb ..... .40
A health certificate and safe delivery guaranteed. 15% discount to approved dealers 10% down books orders. Balance before shipment.
HESSMER BEE FARM, Hessmer, La.
Willie Roy, owner

Package Bees and Queens

Bred for Higher Production.

They will be ready for you when you want them.

R. D. JENKINS, San Benito, Texas

FOR SALE

BRAND your hives with Conner's Branding Irons, Caldwell, N. J.

USED HONEY CANS and cases, two cans to a case, 30 cents. Leon Short, Zion, Illinois.

READY WIRED FRAMES—The latest and greatest of all improvements. Literature free. Sample 10c. A. E. Wolkow, Hartford, Wis.

ECKHARDT QUEENBEE MARKER—Until JUNE $3.00. Postpaid in United States and Canada. Lee B. Trawatha, Willoughby, Ohio. (Representative).

YOUR WAX worked into medium brood foundation for 15c pound; thin super, 22c. 10 pounds medium brood foundation $4.00. Fred Peterson, Alden, Iowa.

ATTRACTIVE prices on bee supplies and comb-foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

WRITE FOR CATALOG. Quality bee supplies at factory store prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Onsted, Michigan.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. E. S. Robinson, Mayville. N. Y.

SPECIAL PLIERS for lifting brood combs, etc., price 55c postpaid. Honey gates for 60-lb. cans, $1.00, plus postage. Ernest Fahlbeck, 406 South Springfield Ave., Rockford, Ill.

CARTONS for Cut Comb Honey. New attractive designs with your name and address. Low prices. Fast service. Samples on request. May Carton Co., Box 257, Traverse City, Michigan.

QUALITY packs of pure maple products, buckwheat and clover honey in latest styled packages, all sizes. Prices are right. May we have a trial order from you. Northern Maple Syrup Co., Liverpool, N. Y.

FOR SALE—300 new hive bodies, 100 shallow supers, 100 bottom-boards and covers, also frames. All 8-frame, and nailed; some bodies painted. A. H. Storms, 411 North Farragut St., Bay City, Mich.

FOR SALE—Fine quality queen mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit. Hamilton Bee Supply Co., Almont, Michigan.

$11.00 is our price for working 100 pounds of your wax into medium brood. Our large modern bee hive factory is manned by experienced workers, milling thousands of pounds of comb foundation, and hundreds of thousands of board feet of lumber into bee hives annually. QUALITY AT LOW COST is our motto. Free catalog. Free shipping tags for your wax. The Walter T. Kelley Co., Paducah, Kentucky.

BEES AND QUEENS FOR SALE

ITALIAN QUEENS. W. G. Lauver, Middletown, Pa.

SILVER RUN QUEENS are sterling. Try them. W. E. Streetman, Midland, Ga.

PACKAGE BEES, Italian queens. Alonzo McKay, Route 1, Vicksburg, Mississippi.

CHOICE three-band Italian queens in season. White Pine Bee Farms, Rockton, Pa.

SPECIAL quotation on your requirements of Italian Package Bees with young, vigorous, prolific queens. Write, Charles Hillock, Valdosta, Georgia.

PACKAGE BEES and Queens. Service, Satisfaction. Sternenberg Bros., Lockhart, Texas.

60 CENTS EACH for good ITALIAN queens, any number. D. W. Howell, Shellman, Georgia.

WE SHIP the day you want us to. Package Bees, Choice Italian Queens. Rapides Apiaries, Winnfield, La.

LEATHER-COLORED Italians at lower prices. Write for prices. M. I. Tindal Bee Co., Greenville, Ala.

FINEST ITALIAN queens 65c. Two-pound package bees with queen $2.25. Loehrs Breeding Farm, Caldwell, Texas.

TO MAKE SURE of a good honey crop, try our Three-banded Italians. Alamance Bee Company, Graham, No. Car.

PACKAGE BEES, QUEENS, Italians, Highest quality. Booking now for early spring delivery. J. E. Wing, Cottonwood, Calif.

BULK BEES from 400 colonies, at 45c per pound, for sale to buyers hauling their bees. Young Apiaries, Box 55, Whistler, Alabama.

REAL PETS—2 lbs. Brown's stingless bees, with young queen, $3.00. Queens, $1.00 each. Brown's Apiary, Cape May Court House, N. J.

PACKAGE BEES, queens, May 1st., Italian or Caucasian. 2-lbs. and queen, $2.50; 3-lbs., and queen, $3.25; queens, 75c. Conner Apiaries, Stockton, N. J.

BRIGHT ITALIANS—Satisfaction guaranteed. Queens, 75c; 2-lb. bees with queen, $2.45; 3-lb., $3.15. 15% discount to dealers. Buford Anderson, Opp, Ala.

BEES—50c per pound. ITALIAN QUEENS, 50c each. Only in lots of 100 or more Two or Three pound packages. James E. Wing, Knights Landing, California.

FOR SALE—Nine colonies bees and supplies on account of lack of space. Bees guaranteed free from disease. F. Koncz, 4103 Clinton Avenue, Cleveland, Ohio.

GOLDEN QUEENS, excellent quality, carefully reared. Will please the honey producer. 75c each. Satisfaction guaranteed. O. E. Brown, Route 1, Asheboro, N. C.

"QUEEN LOOSE PACKAGE", Italians; 2 pounds, queen, $2.45; 3 pounds, queen, $3.15. Cheaper in lots. EPHARDT'S HONEY FARMS, LULING, LOUISIANA.

HUNDRED COLONIES in six-frame hives, all young queens, from my best Root queen. Disease never in apiary. Sell nuclei, or just bees. Wm. Boberg, Petersburg, Ind.

50 COLONIES bees in metal cover, ten-frame, standard, painted hives. All combs wired. State inspected—no disease. $5.50 each. Kenneth Gallant, Jordan, N. Y.

NORTHERN comb honey strain Italian bees and queens in any style package. Nuclei a specialty. Nearest eastern buyers. Agreement prices. A. J. Wilson, Switzerland, S. C.

CAUCASIANS. MILLER BROTHERS, Three Rivers, Texas. Oldest exclusive Caucasian breeders west of the Mississippi. Packages with queens introduced. Write for Circulars.

150 COLONIES of Italian bees. Guaranteed free from disease, for sale, or to a bee executive who will share half the profits. Inquire Steve Zupko, 4463—23d St., Wyandotte, Mich.

(QUEENS WITH CHARACTER)—My business almost doubled in '38—there was a reason. I supplied my customers with the best queens that could be purchased. If you haven't tried them, ask your neighbor. I can fill your early orders. Start shipping about March 10th. D. P. Green, Deland, Fla. R. 2.

FOR SALE

Pure Italian Bees and Queens

Bright yellow and three-band queens, 75 cents each.

1 lb. bees with young queen $1.75
2 lbs. bees with young queens 2.45
3 lbs. bees with young queens 3.15

We guarantee Bees and Prices. Write us what you want and we will satisfy you. You send for them, they go.

GRAYDON BROS.
Route 2, Greenville, Ala.

Nuclei Ready

Four combs of bees, brood, honey, and 1939 laying queen, in new ten-frame hive bodies $3.15 each. Our hive body has a partition through the center, with screen wire top and bottom. (Two-nuclei in each hive body.) Can ship any time you say. No disease.

Wm. Piefer & Sons
Gause, Texas

Package Bees and Queens

LEATHER-COLORED ITALIANS

2-lb. package with queen, $2.25; 10 or more, $2.15. Wholesale, $1.75.
3-lb. package with queen, $2.95; 10 or more, $2.85. Wholesale, $2.35.
Untested queens, 65c, 10 or more, 60c; wholesale, 50c. Shipped by fast express. Every guarantee pertaining to package bees and queens. If we don't more than please you, will give you the packages.

GOOCH APIARIES
FARMERSVILLE, TEXAS

Italian Bees and Queens

As good as the best. Let me book your order early for spring delivery. Satisfaction guaranteed.

W. A. FLETCHER, Garland, Texas

XUM

CAUCASIANS

Extra gentle, prolific, hardy, reared and wintered here in the North like their own country, long-tongued, dependable workers,—10% to 40% ahead of Italians.

CARNIOLANS

Prolific at all times, very gentle, build up fine during the spring, build beautifully white combs. Most excellent workers. My queens headed colonies producing 435 lbs. extracted over the whole yard. Have supplied many state colleges and experiment farms in U. S. and Canada with this race. 31 years' experience with them.

2-lb. package with queen.....$2.50
3-lb. package with queen..... 3.25
8-fr. colony, tested (1938 queen)..... 8.00
Breeding queen (1938 reared)..... 5.00

Packages and colonies ready May 1st on. Breeding queens in April. I am more convenient for eastern states and southern Canada. Less express charges, less net cost, less time in transit, arrive in better condition. Yards 12 miles apart.

Albert G. Hann, Glen Gardner, N. J.

Carefully-Produced 3-Banded Italian Queens and Package Bees

Ready for Shipment, March 20

2-lb. package, with queen—1 to 11, $2.45; 12 to 49, $2.30; 50 to 100, $2.15; 100 or more, $2.00 each.
3-lb. package, with queen—1 to 11, $3.15; 12 to 49, $2.95; 50 to 100, $2.80; 100 or more, $2.60 each.
3-banded Italian Queens, Untested—1 to 11, 75c; 12 to 49, 70c; 50 to 100, 65c 100 or more, 60c each.
Follow our instructions for installing and reduce your queen loss to the minimum. Safe arrival and satisfaction guaranteed.

Jno. C. Hogg, Hahira, Ga.

Queens and Package Bees

CAUCASIANS • ITALIANS

Over 25 Years' Experience.

RIO GRAND VALLEY HEADQUARTERS for TRUCKERS
On Weslaco Progresso Highway

Select young laying queens, each $0.75
2-lb. pkg. with young laying queen, ... 2.45
3-lb. pkg. with young laying queen, ... 3.15

EARLY MARCH QUEENS
15% discount to dealers.

Blue Bonnet Apiaries

R. 1. Box 70, Mercedes, Tex.

BLACK and hybrid packages with queens, 2-lb., $1.70; 3, $2.00. Pure Italians, 2-lb., $2.00; 3, $2.55. Piland Apiaries, Opp, Ala.

FOR SALE—Five colonies bees with supers, tank, extractor, other equipment. Guaranteed free of disease. Frank Franta, 6348 Newark Avenue, Chicago, Illinois. Newcastle 3937.

ITALIAN QUEENS, carefully reared, high producing European foulbrood resistant. New Jersey Experiment Station stock, 75c. Spicer stock, one dollar. Circular. E. G. Carr, Pennington, N. J.

200 COLONIES, Italians, guaranteed no disease, factory ten-frame equipment, all in fine shape. 2-story, 3 locations, alfalfa, white and sweet clover pasture. $1500 cash. T. J. Rowe, Meridian, Idaho.

FOR SALE—8 strong colonies Italian bees in new 10-frame hives with food chamber. Guaranteed free from disease. Inspector's certificate furnished. Edward J. Messerich, 150 McLean Ave., Highland Park, Mich.

TO BE SURE of a big crop place your order with us for bright Italians. Untested queens, 75c; 2-lb. bees with queen, $2.45; 3-lb., $3.15. 15% discount to dealers. Would exchange for some honey. Anderson Bee Co., Opp, Ala.

BEGINNER'S BEST BET, high quality ITALIAN queen introduced, one standard comb, two-pound bees, $2.45; MODIFIED DADANT comb, two-pound bees, queen introduced, $3.00. EPHARDT'S HONEY FARMS, LULING, LOUISIANA.

CAUCASIAN package bees and Queens ready April 1st. 2-lb. pkg., $2.25; 5 or more, $2.00 each; 3-lb. pkg., $2.75; 5 or more, $2.50 each. Untested queens, 1, 75c; 10 or more, 60c. Safe arrival. Lewis & Tillery Bee Co., Greenville, Ala., R. 4, Box 132.

EARLY PACKAGE BEES—Prompt shipment begins May 1. Two-pound package bees with queen, $2.45; 3-lbs., $3.15. Add 25c postage for each package. Choice Italian queen, 75c. Safe arrival guaranteed. Birdie M. Hartle, Reynoldsville, Pa., Box 363.

EXTRA YELLOW Italian queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested 75c each; tested $1.50 each. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, N. C., Route 2.

THE NORMA ROY APIARY—Italian bees. 2 pounds with queen, combless, $2.00; 2 pounds with queen introduced, 1 comb brood, $2.20. Additional pounds bees, 50c; additional comb brood, 40c. Health certificate with shipment. Norma E. Roy, Hessmer, Louisiana.

NASHVILLE, TENN. Bees and Queens. High-grade Italian Bees and Queens, shipped promptly from my yards here, thereby saving you time and express charges, 2 pound package with Queen, $2.45; 3 pound package with Queen, $3.15. Discount on large shipments. N. S. Gladish, 5 Hobbs Rd., Nashville, Tenn.

FOR stronger colonies, bigger honey crops and gentler bees try our prolific, well-bred, three-banded Italians. Used for years by leading beekeepers of the U. S. and Canada. They will satisfy you. We send all new light, clean and convenient shipping cages; more than full weight of healthy young bees; select young laying queens of our own production; few or no drones, and no disease. 2-lb. packages with queens, $2.45 each; 3-lb. packages with queens, $3.15 each. Express or mail shipment, f.o.b. here. Select young laying queens, 75c

each. Postpaid. Our shipping season opens April 10th. Capacity 100 packages and queens daily. Order early and have your shipping date reserved. H. C. Short, Fitzpatrick, Ala.

HELP WANTED

WANTED—A good man for bee work; experienced and willing to work. Also want to trade dark honey for packages. Walter Rink, Port Hope, Michigan.

INDUSTRIOUS young man of good habits and some experience for coming season. Room and board furnished. State full particulars first letter. Coggshall and Son, Groton, N. Y.

DEPENDABLE MAN—Some experience in commercial beekeeping. References, wages wanted, full particulars first letter, board and room furnished. J. B. & C. J. Merwin, Prattsville, N. Y.

WANTED—Industrious young man of good health and habits to work with bees. State age, weight, height, experience and wages expected. Room and board provided. D. B. Ellis, Caro, Mich. Route 4.

WANTED—Young man of good habits, with some experience in beekeeping, for coming season. Room and board provided. Please give your experience and wages desired. M. L. Winn, King Ferry, N. Y.

WANTED—Industrious young man of good habits with some experience with bees. Give age, weight, experience, references and wages expected, with room and board furnished, in first letter. Jay Cowing, Jenison, Mich.

POSITION WANTED

YOUNG MAN, clean habits, strong, some experience, wants work badly, helper in apiary. Joseph Gresho, Hermanville, Maryland.

YOUNG MAN desires work in apiary. Have some commercial experience. Can supply references. Charles Willit, Co. 3693 CCC, Chelan, Washington.

WANTED—Position as apiary manager or assistant. Have had 12 years experience with bees. Elmer H. Miller, 101 Glendale Ave., St. Clairsville, Ohio.

WANTED—Work as helper with beekeeper for season of '39. Reasonable wages. Experienced, reliable, good references. Beekeepers—Rush your reply to this ad. Harlan Teager, Tollesboro, Ky.

YOUNG ENGLISH beekeeper desires position as assistant in commercial apiary in America. 10 years practical experience. BBKA. Inter. Cert. Pay own travelling expenses. References provided. Box. No. 12, Gleanings, Medina, Ohio.

SITUATION WANTED—Young man, 27, high school education. Good references. Desires position with commercial beekeeper for spring and summer. Have kept and handled bees in small way. Alden H. Bacon, East Palestine, Rt. 2, Ohio.

IN 1938 I have sold over 250,000 pounds honey. I am interested in a position or partnership with an organization seeking expansion. Age 30, college graduate. Experience; —Selling honey, beeswax, beekeepers supplies. Purchasing, shipping, exporting, typing, commercial correspondence, writing sales letters. Write Box 8, Gleanings.

MISCELLANEOUS

LABELS—NEW DESIGNS. Samples free. Thoughtgift. 50 Presque, Rochester, New York.

WANTED—Full colonies of bees, also ten frame equipment. Walter Roose, 1627 Main St., Sac City, Iowa.

9 BASSWOOD SEEDLINGS 2 foot, or 6 Pink Honeysuckle bushes 10-inch (nectar producers) for $1.00, postpaid. Nicollet County Nursery, St. Peter, Minn. (Lewis-Dadant Dealer for this territory.)

FOR SALE—New and used 10-frame Root equipment, used, in A-1 condition. Simplicity 45-frame extractor, motor tanks, 100 shipping boxes for 2 60's. Priced to sell. If interested, write. Mitchell Storage and Transfer Co., Mitchell, So. Dak.

DAIRY GOATS

LEARN ABOUT DAIRY GOATS—monthly magazine $1 yearly; sample copy and information free. Dairy Goat Journal, Dept. 919, Fairbury, Nebr.

CHEMICAL AGRICULTURE

RAISE PLANTS, seedlings, flowers in your window. Culture solution, directions and valuable information, 50 cents postpaid. Healthier, faster growth by The Chemical Method, 1936 Delancey, Phila., Pa.

FOR SALE OR TRADE

WILL TRADE 160 acre Oregon homestead for bees. Box 10, Gleanings.

WANTED—To trade bees and queens for Root's 3-ply foundation. W. O. Gibbs, Brookfield, Ga.

FOR SALE OR TRADE—Queen mailing cages. Bee shipping cages and comb honey cases. Free sample. Beeline Apiaries, Menomonie, R. 5, Wisconsin.

WILL TRADE business building for bees. Also electric shoe repair outfit. Also $300.00 credit on Plymouth or Desoto choice of designs. Collins Apiaries, Emporia, Kansas.

CALIFORNIA BEE TOOL CO.,

810 W. Pedregosa St., Santa Barbara, Calif. Practical Useful B. B. Pliers and Hive Tool Combined. Quick work, best frame lifter and holder. Indispensable in prying supers and frames. Strong and durable for heavy service but light to handle. Price $1.00.

QUEENS

Highest Quality Italians

Prompt shipment and 100% satisfaction guaranteed. Also packages.

VALLEY BEE & HONEY CO.
Weslaco, Texas

A Good Rule to Go By

Buy your Italian bees and queens from

ALABAMA APIARIES
Mt. Pleasant, Alabama

2-lb. package with queen	$2.45
3-lb. package with queen	3.15
Queeens	.75

Write us for liberal discounts.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

XUM

J. G. Rossman, Moultrie, Ga. E. W. Long, Conover, Ohio

ROSSMAN & LONG

Box 133, Moultrie, Ga.

offer

PACKAGE BEES and QUEENS

of IMPORTED strain, that will give surprisingly good results in the honey field. Let us help you to help yourself, by using our bees and queens this season.

FULL-weight packages
Superior QUALITY
Outstanding Gentleness
QUEENS reared on honey
LIVE arrival guaranteed
SERVICE that satisfies

No charge for loose queen which will be clipped, or clipping caged queens.

Orders for loose (introduced) queens must be placed twenty days before shipping date for us to guarantee delivery.

2 lbs. with queen $2.45
3 lbs. with queen 3.15
Queens ..... .75

DISCOUNTS

Orders amounting to		Net.
$ 50		5%
50 to $ 100		10%
100 to	250	15%
250 to	500	20%
500 to	1000	25%
1000 up		

We can also furnish nuclei with good combs. Write for free circular and complete price list.

A card will put you on our regular mailing list. Also domestic stock.

Our Patented Wired Foundation

is not a cheap substitute or an imitation of something that others have made. We take pride in telling you that this is the best, most practical, and the strongest wired foundation ever made and there is nothing cheap about it but the price. More detailed information will be sent on request.

$42.50 per 100 lbs. Making charges $18.00 per 100 lbs. Metal eyelets @ 35c per 1000 postpaid.

F. KNORR & CO., Del Mar, California

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

There is a Difference in Packages

The fine crops of honey produced by our customers should convince you that you can't go wrong in buying your packages from Cutts. We are better prepared than ever to serve you. 2-lb. package with queen, $2.45: 3-lb. with queen, $3.15. 15% discount to dealers. Write for circular and price list.

J. M. Cutts & Sons
R. 1 Montgomery, Ala.

Norman Bros' Package Bees and Queens

Bright 3-Banded Italians--The Best Kind You Can Buy

REASONS WHY

Superior Quality—Large Supply
Fast Service—Full Weight
Light Shipping Cages
Young Baby Bees
Choice Queens

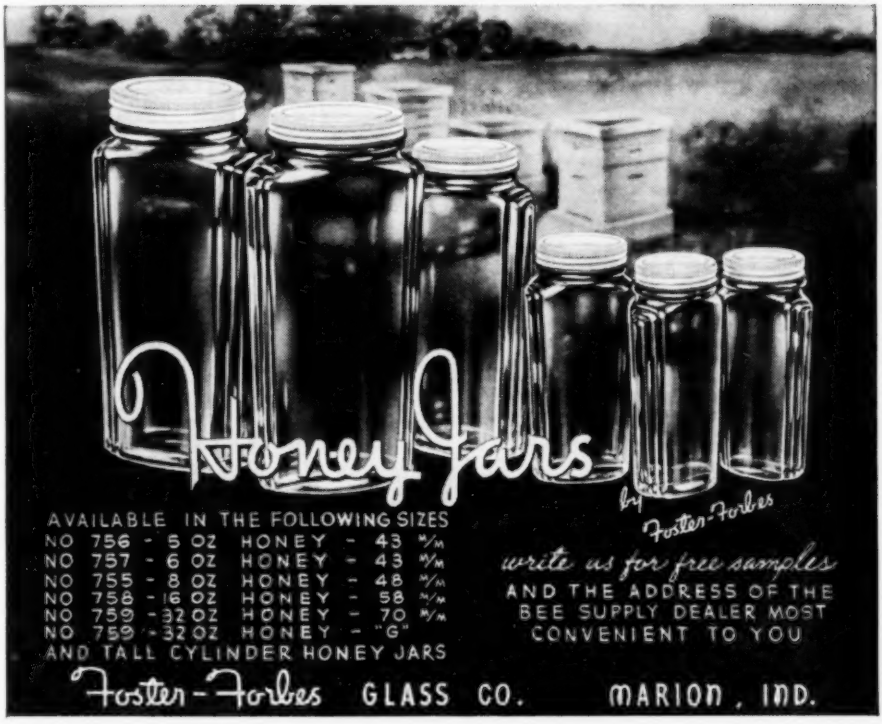
Safe arrival, satisfaction guaranteed, health certificate furnished. Order now. They will be ready when you want them. No dealer's discount allowed.

PRICES

	1 to 49	50 or more
2-lb. pkg. with queen,	$1.75 ea.	$1.70 ea.
3-lb. pkg. with queen,	2.25 ea.	2.20 ea.
Untested queens, ...	.55 ea.	.50 ea.

Each additional pound bees, 50c.

NORMAN BROS. APIARIES, RAMER, ALABAMA


Honey Jars
by Foster-Forbes
AVAILABLE IN THE FOLLOWING SIZES
NO 756 - 5 OZ HONEY - 43 M/M
NO 757 - 6 OZ HONEY - 43 M/M
NO 755 - 8 OZ HONEY - 48 M/M
NO 758 - 16 OZ HONEY - 58 M/M
NO 759 - 32 OZ HONEY - 70 M/M
NO 759 - 32 OZ HONEY - "G"
AND TALL CYLINDER HONEY JARS
write us for free samples
AND THE ADDRESS OF THE BEE SUPPLY DEALER MOST CONVENIENT TO YOU
Foster-Forbes GLASS CO. MARION, IND.

We Offer You

Good Strains of honey-producing bees.

Good Queens, produced by careful men of long experience.

Packages well filled with young bees. No drones.

Service that is the best. Plenty of dependable, experienced help.

Express service that is fast, over direct lines to the North, East, or West.

Italians--Caucasians

2-lb. pkgs. with queen, ea. . . $2.45
3-lb. pkgs. with queen, ea. . . 3.15
Queens, ea. 75

Write for prices on lots of 50 or more, also for prices on nuclei.

Weaver Apiaries

Navasota, Texas

Quality Bred Italian Bees and Queens

Quality, not Price, Makes the Value

Beware and Buy Wisely

Untested young laying queens, ea. . . $0.75
Tested queens, ea. 1.50
2-lb. pkgs. bees with caged queens, ea. 2.45
3-lb. pkgs. bees with caged queens, ea. 3.15
4-lb. pkgs. bees with caged queens, ea. 3.85
5-lb. pkgs. bees with caged queens, ea. 4.55
Queenless packages, less price of queens.
DEALER'S DISCOUNT 15%
500 PACKAGES AND UP, 25%
2-lb. pkgs. bees with loose queens, ea. $2.60
3-lb. pkgs. bees with loose queens, ea. 3.30
50 PACKAGES OR MORE 15% DISCOUNT
500 UP 20%

Plenty of bees, queens and good service. Place orders now without further delay. Full weights, safe arrival and satisfaction guaranteed.

YORK BEE COMPANY

Jesup, Georgia, U. S. A.

(The Universal Apiaries)

XUM

Revised Prices

First Quality Package Bees and Queens at a Price You Cannot Beat Anywhere.

PRICES

Quantity	10 to 50	50 to 5,000
2-lb. pkgs. with queens,	$1.60	$1.50
3-lb. pkgs. with queens,	2.20	2.00
Untested queens,	.60	.50
Tested queens,	1.00 any number	
Additional bees,	.50 per lb.	

We have shipped several hundred thousand packages and queens in the last 28 years and you are assured of good service, first quality Bees and Queens. Shipments are being made promptly now. No discount from above price.

Merrill Bee Company
Bucatunna, Miss.

JUST NEWS

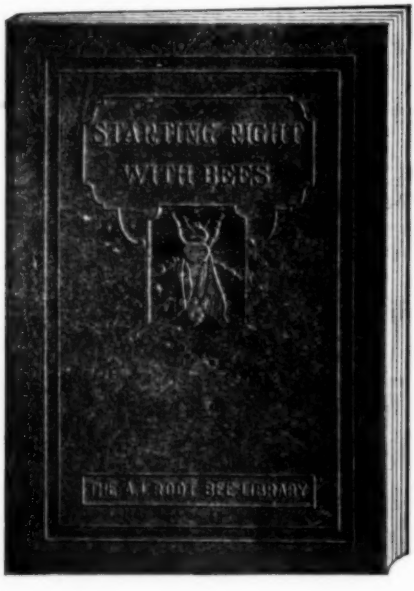
(Continued from page 224)

uated from Kansas State College in 1933, assisted Dr. R. L. Parker of Kansas State College, worked with Dr. L. R. Watson, Alfred University, N. Y., during the summer of 1936 and 1937 in the work of artificial insemination of queen bees, was assistant to Dr. J. E. Eckert, Davis, Calif., also F. E. Todd of Pacific States Bee Culture Field Station in 1938 and had accepted a position to engage in specialized work in bee breeding and instructor in beekeeping at the Louisiana Field Station, Baton Rouge, on February 1 of this year. Beekeeping has lost an able research worker.

• • •

The American Woman's Cook Book published by the Culinary Arts Institute under the directorship of Ruth Berolzheimer is on the desk of American Honey Institute. This book will appeal to all women who are interested in cooking and food values. Among the recipes are Honey Fondant, Frosting, Ginger Nuts, Hermits, Sandwich Bread, Sauce, and Twist. The book is replete with full page process photographs, colored plates and has a thumb index which makes it convenient to handle in spite of its 900 pages.

(Continued on page 257)



More Honey from Bees

You must operate your bees according to the best methods to secure good crops of honey. You will find the answers to many of your questions in this beginner's book.

Starting Right with Bees

50 cents

With one year's subscription to "Gleanings in Bee Culture" for $1.25

SEND ORDER TO THE A. I. ROOT CO., MEDINA, O.

JUST NEWS

(Continued from page 256)

The Texas Beekeepers' Association will hold their annual meeting in Waxahachie June 23 asd 24, 1939. The Chamber of Commerce, the Women's Clubs, and Trinity University will aid in making the beekeepers at home. Preparations for an excellent program with out-of-state speakers are already under way. Special features consist of opportunity to visit the Burleson assembling and packing plants and to have available the City Auditorium where the meetings will be be held, a commercial apiary adjacent, live bees and all. Due to the fact that this is the great cotton honey producing district it is expected that this meeting will have large attendance both of actual beekeepers and those interested in beekeeping as it affects other branches of trade.

• • •

The International Congress of Apiculturists will be held in Zurich between August 6th and 8th, this year.

• • •

Designed to stimulate and increase the use of western grown foods and food products, a series of tri-weekly broadcasts is being sponsored over 15 broadcasting stations from Chicago to the Pacific Coast by the Union Pacific Railroad. Under the title of **"Surprise Your Husband"** these programs offer suggestions for unusual and new ways to use western foods and making the recipes available to housewives through the Union Pacific Research Kitchen in Omaha. Although the programs have been on the air only a few weeks, requests for the recipes are coming to the Research Kitchen at the rate of more than 5,000 weekly. A special use of honey will feature the program on April 14, which is devoted to suggestions for a delicious "Honey Pumpkin Pie," a recipe tested and approved by the Union Pacific Research

(Continued on page 261)

We Offer You 2% Discount on Orders Received Before May First

One extra queen with every 20 packages.

2-lb. pkgs. with queen,	$1.75
3-lb. pkgs. with queen,	2.25
4-lb. pkgs. with queen,	2.75
Untested queen,	.50
Tested,	1.00

All packages F.O.B. express.

We have been breeding 3-banded Italian bees for eighteen years and have been shipping all these years to all parts of U. S. and Canada. Ours will please you. Let us prove it with our large yellow select 3-banded Italian honey-gathering strain of bees. We ship full weight of baby bees with a young fertile queen in light weight cages. We are now ready to book your orders for bees and queens. Health certificate furnished. Safe arrival and satisfaction guaranteed.

Norman Bee Co.
LaPine, Alabama

ITALIAN BEES AND QUEENS
SHIPMENTS START APRIL 1st.

2-lb. package with queen,	$2.45
3-lb. package with queen,	3.15
Queens, each	.75

E. A. CASWELL
4019 Piety St., R.F.D. Rt. 4.
New Orleans, La.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

MILLER'S QUEENS

25 YEARS A QUEEN BREEDER

Miller's Old Reliable 3-Banded Italian Queens are reared from very young larvae which insures unusual vitality and greatly lessens the chance of supersedure. Our bees have a reputation as the best of honey-gatherers.
Queens, 75c each.

JOHN G. MILLER
723 C St. CORPUS CHRISTI, TEXAS

XUM

ALL RIGHT BUY RIGHT
FROM
SULLIVAN AND WRIGHT

Best Quality Italians

Fast and Courteous Service

Only twenty-six hours out of Chicago

We believe we have the best strain of Italians available. We are not partial to our strain and would change if we could find any better. But though we have bought queens, and traded queens with other beekeepers we so far have found none superior to ours. Get ours and you will get honey.

Untested queens	$0.70
Tested queens	1.50
2 lb. pk. with queens	2.45
3 lb. pk. with queens	3.15

15% discount to dealers and one extra queen with each 25 queens or 25 packages.

Extra Special

Black bees at a real bargain. These bees are inspected by the state inspector and are just as good as any for starting colonies with packages and at a big saving to you. We furnish a regular young mated and laying Italian queen with each package. A colony started this way will be an Italian colony as soon as the bees that arrived in the package die, as the queen only mates once. All her brood will be Italian.

2 lb. pk. with black or Italian queen	$1.50
3 lb. pk. with black or Italian queen	2.00

No discount on these bees.

SULLIVAN WRIGHT & CO., Gilbertown, Alabama

For Complete Satisfaction

buy your package bees and queens from us. Our unconditional guarantee of complete satisfaction protects you. No better bees and queens are produced. Shippers since 1916.

Prices—2 lbs., $2.45; 3 lbs. $3.15; Queens. 75c. Less discount of 15% to dealers.

GEO. A. HUMMER & SON

PRAIRIE POINT, MISS.

Figure the Discount

6% on $10.00 orders
8% on $50.00 orders
10% on $100.00 orders
20% to recognized dealers
Additional Discount 5% on orders booked 30 days in advance of shipping date.

PRICES:

Select Laying Italian Queens, each,	$ .80
2-lb. pkg. of Bees with Queen, each,	2.60
3-lb. pkg. of Bees with Queen, each,	3.35

Queen-Loose Packages, 15c each extra.

BEST QUALITY and SERVICE. LIVE DELIVERY and SATISFACTION GUARANTEED

Order direct from this ad.

J. F. McVay, Jackson, Alabama

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for five shillings (Australian) at your Post Office.

Write now to The Editor, P. O. Box 20. West Maitland, New South Wales, Australia.

Italian Bees and Queens

Breeding Queens Selected from the Famous Northwestern Ohio Clover Belt where we Produce Honey by the carload. Thirty Years' Experience in Northern and Southern States insures you bees and queens of the largest Honey Producing Strain possible

	1 to 9	10 to 24	25 to 49	50 or more
2-pound packages	$2.45	$2.20	$2.05	$1.90
3-pound packages	3.15	2.85	2.70	2.50
4-pound packages	3.85	3.50	3.35	3.15
5-pound packages	4.55	4.15	4.00	3.75
Untested queens	.75	.70	.65	.60
Tested	1.50	1.40	1.30	1.20

For Comb Packages, add 40c to Prices above for each comb. For queenless packages, deduct from Packages the price of queens in quantity. We ship the package with queen introduced, if wanted. This is superior to the so-called loose-queen package. We guarantee these queens introduced 100%. We ship one extra queen or package with each Order of 25 or additional 25.

D. C. JACKSON APIARIES
MOREHEAD APIARIES

FUNSTON, GA., OR CONVOY, O., U. S. A.

PACKAGE BEES AND QUEENS

Your choice of queen.

CARNIOLAN, CAUCASIAN, ITALIAN

From one package to a truck load will receive our special attention. We take special pride in our ability to fill large orders promptly. A quarter of a century of efficient service, in the same locality, is our record.

My motto through the years: I will expect to do business with you again.

	1 to 49	50 or more
2-lb. package bees with young select laying queen, each	$2.00	$1.75
3-lb. package bees with young select laying queen, each	2.60	2.35

You can pay more but you cannot get better bees or fairer treatment.

H. E. GRAHAM, Cameron, Texas

Shaking Bees Is Hard

on Any Foundation

3-PLY foundation stands this severe strain even during extreme hot weather. Let us quote you on 1939 requirements.

Bee Industries, Ltd., Alhambra, Calif.

1124 Westminster Ave.,

XUM

Increase Your Profits with

SPOERRI'S GOLDEN BEES

You, too, will be amazed with results of this special strain of super-productive Golden Bees.

Queens are personally reared from improved, tested stock, and will produce strong colonies of large, gentle, Golden Bees. These bees winter exceedingly well, stand extreme summer heat, and are practically non-swarming.

Delivery on time—Young Bees—No Drones
Heavy Packages and Live Arrival GUARANTEED!

FAST DEPENDABLE SERVICE & SUPERIOR QUALITY at no extra cost

Queens, postpaid, each 75c. 10 Queens and over, postpaid, each 70c. 2-lb. package with Queen—1 to 9, $2.45; 10 to 49, $2.25; 50 to 99, $2.10; 100 and over, $2.00. 3-lb. packages with Queen—1 to 9, $3.15; 10 to 49, $2.90; 50 to 99, $2.75; 100 and over $2.65.

Discount to dealers and associations, 1 to 99, 15%; 100 and over, 20%, on unit prices.

Spoerri Apiaries
St. Bernard P. O., Louisiana

Quality Counts

Package Bees and Queens

You are assured full weight packages and young queens when you order from us.
We are ready to supply you with bees from our thrifty three-banded Italian stock, 18 years experience in queen rearing and package shipping.
Health certificate with each shipment. Safe arrival and satisfaction guaranteed. Order now, we ship on date wanted.

PRICES

Mated Italian Queens ...$ .75
2-lb. pkgs. with queens .. 2.45
3-lb. pkgs. with queens .. 3.15
15% discount to dealers

The Ideal Apiaries
DURANT MISS.

"Marugg Special" Grass Scythe

Grass and weeds should not be tolerated in any apiary. Beekeepers are interested in securing a scythe that will keep the space around beehives clean. The "Marugg Special" scythe is without doubt one of the most useful tools a beekeeper can own. It cuts quickly and cleanly, holds a keen edge and is kept in cutting shape easily. See advertisement on page 198.

Italian Package Bees and Queens

Established 1883

Untested queens, ...$0.75
2-lb. pkg. and queen, ... 2.45
3-lb. pkg. and queen, ... 3.15
Less 15% to dealers.

Victor Apiaries, Goodrich, Tex.

Palmetto Quality Queens

Again we solicit your orders for our high quality queens for the season of 1939. Prices as follows: 1 to 10 queens, 65c each; 11 to 50 queens, 60c each; 51 to 100, at 55c each. We guarantee satisfaction and a square deal.

C. G. ELLISON & SONS
Belton, S. C.

JUST NEWS

(Continued from page 257)

Kitchen. Each program also carries a "thumbnail" radio playlet, especially written and produced for the program in Hollywood. This program will be heard on Monday, Wednesday, and Friday of each week over the following stations, and at the times indicated:

WMAQ	Chicago	4:00 P. M.
WCCO	Minneapolis	2:55 P. M.
KMBC	Kansas City	9:30 A. M.
WHO	Des Moines	4:50 P. M.
WOW	Omaha	2:45 P. M.
KLZ	Denver	2:10 P. M.
KSL	Salt Lake City	11:55 A. M.
KGIR	Butte	9:50 A. M.
KHQ	Spokane	8:30 A. M.
KIDO	Boise	2:45 P. M.
KIRO	Seattle	9:10 A. M.
KOIN	Portland	3:10 P. M.
KFRC	San Francisco	12:10 P. M.
KNX	Los Angeles	8:55 A. M.
KMOX (Tues., Thur. and Sat.)	St. Louis	11:00 A. M.

• • •

The following table compiled by Chas. A. Reese, State Apiarist of Ohio, is interesting in that it shows the gradual decline of AFB in Ohio when the burning method is used:

Year	Apiaries	Colonies inspected	% AFB
1930	5,062	52,986	13.830
1931	7,023	63,533	14.940
1932	6,003	55,069	6,971
1933	4,704	42,193	6.685
1934	5,924	50,034	5,500
1935	7,829	67,184	5,574
1936	9,012	75,207	4.454
1937	9,272	84,337	4.139
1938	10,784	96,338	3.715

• • •

PACIFIC COAST BEE LABORATORY

(Continued from page 209)

were increased to 400-500 square inches in these areas, honey crops were considerably increased, in fact doubled in some cases. The areas where low fall pollen reserves were discovered were the orange belt of Southern California, and the Willamette Valley and fireweed section of Oregon. It is of interest that the

(Continued to page 264)

Caucasian Bees and Queens

Reduced Prices

2-lb. pkg. with queen, ...$2.00
3-lb. pkg. with queen, ... 2.50
Queens, 60c each.
No discount.
Safe Arrival and Satisfaction Guaranteed.

P. B. Skinner Bee Company
Greenville, Ala.

We Begin 1939

With High Quality Italian Queens Introduced

One standard comb, with honey and brood, and 2 pounds of bees, $2.45. Also 2 pounds of bees and a Modified-Dadant comb, $3.00.

I am now putting out

"A Queen Loose Combless Package" that solves the supersedure problem. Give them a trial at $2.45.

1-9	10-24	25-49	50-99	100 or more
$2.45	$2.35	$2.25	$2.20	$2.08

J. P. CORONA
P. O. Box 124, Kenner, La.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

Pure Italian Queens and Package Bees

We give you Perfect Packages, Good Queens, Quick Service and Right Prices.

No Discount.

20c allowed on each Cage with Feeder when furnished by customer.

Order immediately at the present Low Prices:

Queens, untested, each	$0.50
Queens, tested, each	1.00
2-lb. package with queen	1.75
3-lb. package with queen	2.25
2-lb. pkg. without queen	1.25
3-lb. pkg. without queen	1.75
Each additional pound bees	.50

Lucedale Apiaries, Lucedale, Mississippi

California Bees and Queens

Most Northern Shippers in California.

Safe arrival guaranteed.

Lower express rates to the North and Northwest.

Quality—none better.

Circular upon request.

Banta & Wire
Los Molinos, Calif.

CLEANSING FLIGHT OF BEES

(Continued from page 217)

mostly all young bees unable to make the grade. And such flights are followed by springs with weakened colonies and slow building up. In my very first years I used to gather up the chilled bees and warm them so that they could get back to their hives. This probably is not a paying proposition, but a bee lover will understand my feelings.

All our winter troubles come from the fact that bees cannot fly at low temperatures and will not voluntarily ease themselves in the hive. I know that some writers have offered the theory that in perfect health the bee voids a small black pellet in the hive. Even so close an observer as A. C. Miller took this view. I really believe that he mistook the small black particles which bees get when they clean their bodies for excrement. I have many times watched bees clean themselves and finally with a rub of the hind feet push off a small black pellet about the size of poppy seed. I have never seen a bee cast such a pellet from its abdomen. I have never seen any but a sick worker bee void its excrement in the hive and in

(Continued on page 263)

Smith's Superior Bees and Queens

Friends, we want you to take just a few minutes and read this ad closely. You usually get whatever you pay for in anything. This saying is especially true in the purchase of bees and queens.

We are in this business to make an honest living and also give you something where you can also make an honest living. We do not care to sell you bees for just this season. We want to ship you bees this year so as to have you as a permanent customer.

It has always been our custom to give the best we had and then let you be the judge as to whether you wanted our bees again. In most cases they bought year after year.

In the last five years our business has TRIPLED while we have done very limited advertising in only this bee journal. The money we saved on advertising we have spent on improving our bees and service and YOU will get the benefit of it.

This ad is not intended for our old customers, as they know our bees and service. We have plenty of customers who never ask our prices. They just send in their orders and then ask what they are so they can mail check before shipping time.

We want a few more buyers like the above, so let us know HOW MANY packages you will need and we will quote price by return mail. We have not mailed out a single CIRCULAR in the last five years and will not trouble you with a lot of "BULL" to try to sell you against your will. If you buy one time that is all we ask, but nine times out of ten you will buy again.

Write us NOW. We are here to serve you and serve you RIGHT.

N. B. SMITH & CO., Calhoun, Alabama

CLEANSING FLIGHT OF BEES

(Continued on page 262)

every case it was noisome and more or less pasty. I have seen queens many and many a time evacuate their bowels, and in every case the excrement was watery and slightly colored. I have seen drones dirty the frames of the hive. Worker bees quickly suck up such excrement both of drone and of queen.

It is an interesting question here as to how much the discoloration of brood combs is due to these happenings. The inside of a queen cage will become noticeably discolored after a week of confinement of queen and attendants.

One of the mysteries of the hive is the pasty blackish lumps that accumulate about the base of old queen-cells and on the edges of drone comb. Too soft for wax and with little evidence of being propolis—what is it? Is it in the range of propriety to suggest that it is the accumulation of queen excreta?

Whether a winter flight is a disaster or a blessing it has to be put up with. We can help some at the time, but we can help most by seeing in the fall that all stores are good, that colonies are strong and that hives are well made. In case of need we can see that there is the proper protection that experience has taught.

THE BEE WORLD—The leading journal in Great Britain, and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership in the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

For Prompt Efficient Service Particular People Choose

Pettit's Package Bees and Queens

Many years a beekeeper, inspector and instructor in Ontario and fourteen years a shipper in Georgia, we offer you the benefit of thoughtful experience.

We have again increased our colonies and they are in splendid condition to give you plenty of vigorous young bees. They are three-banded Italians and the queens will be of the best stock, productive and gentle, reared by our queen breeder who is one of the best and most careful in the country.

Our new method of shipping greatly reduces shipping losses and supersedure. Many kind letters from satisfied customers testify to this.

Write for our booklet which tells all about it.

Prices

Quantity	Twos with Queens Each	Threes with Queens Each	Queens Each
1-11	$2.25	$2.90	$0.70
12-23	2.15	2.75	.65
24-up	2.00	2.55	.60

Safe arrival and satisfaction guaranteed

MORLEY PETTIT

Albany, Georgia, U. S. A.

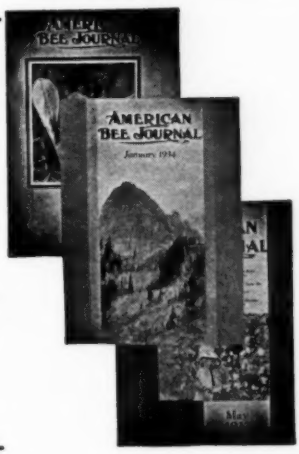
2 Years $1.50

American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

SAMPLE COPY FREE.

$1.00 a year, 2 years $1.50 in U. S. A. and Canada Combined with Gleanings in Bee Culture, both magazines, **ONE YEAR, $1.60.** This offer good only in the United States. Address—

American Bee Journal, Hamilton, Ills.



One of the three queen yards of the Overbey Apiaries, Bunkie, La.

Overbey Apiaries, Bunkie, La.

The Home of Good Beekeeping

YOU GET WHAT YOU PAY FOR is an old saying, yet a true one

Price cutting breeds to unpreparedness. That in turn breeds inability to serve you on time, or late shipments. You know what that means to You. Buy your bees from a reliable firm that gives you your money's worth when you send it to them.

Don't Delay Another Day—Order Your Bees Today.

Our GUARANTEE OF ABSOLUTE SATISFACTION assures you of the very best that your money can buy.

2 lbs. with queen $2.45; 3 lbs. with young queen $3.15. Extra queens, 75c. 15% off to dealers.

Write for our pictured pamphlet illustrating our 1928-1938 growth.

Overbey Apiaries, Bunkie, La.

PACIFIC COAST BEE LABORATORY

(Continued from page 261)

package bee industry is localized in an area having superior fall and early spring pollen sources.

Pollen (Todd):

Unsuspected relationship of fall pollen reserves to productivity of apiaries was shown in the pollen reserve studies, but other questions remained unanswered, such as the food value of pollen from various sources, quantity required by colonies during the year, and storage habits. Work on the answers to such questions is now in progress. Large samples of pollen from 30 specific plant sources have been sorted out, subjected to chemical analysis, and been found to vary widely in food values such as proteins, fats, and minerals. Carotene, associated with vitamin A, has been found in certain pollens.

By trapping the incoming pollens from colonies it has been found that the daily pollen yields are fully as variable as those of nectar, and that pollen supplies may be affected by weather conditions such as winds and heat. The quantity of pollen obtained has been a great surprise, ranging up to a pound or more per day under some conditions and falling off to less than an ounce in others. The colonies also appear to vary in the quantity of pollen gathered, which is perhaps an hereditary character.

THE EFFECT OF MELTED BEESWAX ON HEATED HONEY

(Continued from page 223)

Obviously the beekeeper cannot afford to throw away the honey which adheres to cappings, and if there were no way to salvage this honey except by the use of a capping melter, he would be forced to use one. There are of course other ways of accomplishing this. The merit of the capping melter is that at the end of a day's run, the job is finished. The demerit of other plans is that after extracting is done, the beekeeper has a task of somewhat unpleasant nature still ahead of him in disposing of accumulated cappings. The fact that honey standing at room temperatures in contact with cappings is somewhat injured in flavor would seem to favor some plan of a quick removal of the honey from cappings. Since some honey is damaged by passing through a capping melter, the use of this equipment cannot be considered desirable, and this equipment seems to be a dangerous thing to place in the hands of a beekeeper. The task ahead seems to be to devise the most effective equipment for removing honey from cappings at once without the application of heat, and fortunately several beekeepers are at work on this problem. A discussion of such equipment does not lie within the limits of this paper.

HONEY JARS

Hazel-Atlas presents four complete lines of Honey Jars, all designed specially for honey packers . . . Crystal clear glass displays the natural beauty of your product . . . Jars are easily packed and labeled . . . Available in a complete range of sizes . . . Write for free samples.

HAZEL-ATLAS GLASS CO.

WHEELING, W. VA.

XUM

OUR CUSTOMERS SAY:

"You've Got Something There"

You Can Prove It To Yourself At Our Risk

Order any number of our SPECIAL LOOSE-QUEEN PACKAGES, either size, and an equal number of caged-queen packages from us or any southern shipper. Install all under same conditions, same time, and keep your own records: If our Special packages do not give you more for your money, we will REFUND EVERY PENNY of the difference in price. Is that fair?

Special Loose-Queen Pkg.	2-lb. $2.60	3-lb. $3.30
Regular Caged-Queen Pkg.	2.45	3.15

Dealers and associations discount, 15%

Quantity Discount 15 to 50 Pkgs. 10%
50 to 100 and above 15%

Write For Illustrated Booklet
Price List and Order Blank.

The Puett Company, Hahira, Ga.

BETTER-BRED QUEENS Three-Banded Italians

Bees, bees, bees, plenty of them. We are having one of the best springs for package bees that we have had in several years. Therefore, we are passing it on to you, and allowing the 15% discount to all who buy our bees this spring. We can also furnish loose-queen packages. Please book orders several weeks before shipment of loose-queen packages.

2-lb. packages with queens, ...	$2.45	4-lb. packages with queen, ...	3.85
3-lb. packages with queens, ...	3.15	Queens, ...	.75

Loose-queen packages, 15 cents higher.

15% discount to everyone. If you wish large quantities, write for prices.

CALVERT APIARIES, Calvert, Alabama

GASPARD'S

Quality Golden and Three-banded Queens.
Package Bees and Nuclei for Spring 1939 Delivery.

2-lb. package with queen, one frame of brood, each, (Comb Packages with Queens)	$2.45
3-lb. package with queen, one frame of brood, each,	3.15
4-lb. package with queen, one frame of brood, each,	3.85
5-lb. package with queen, one frame of brood, each,	4.55
2-lb. package with queen, two frame of brood, each,	$3.05
3-lb. package with queen, two frame of brood, each,	3.65
4-lb. package with queen, two frame of brood, each,	4.25
5-lb. package with queen, two frame of brood, each,	4.85
2-lb. package with queen, each, (Combless Packages with Queens)	$2.45
3-lb. package with queen, each,	3.15
4-lb. package with queen, each,	3.85
5-lb. package with queen, each,	4.55

Untested queens, 75 cents each; tested queens, $1.50 each.
For queenless packages deduct price of queen.
Twenty years' experience in the package-bee business which assures you of prompt and efficient service. Safe delivery and satisfaction guaranteed, and a health certificate with each shipment. Book your order early and reserve shipping date. 5 to 9 packages 5% discount; 10 to 24, 10%; 25 to 49, 15%; 50 to 99, 20%; 100 or more, 25%.
10% will book your order; balance at shipping time.

J. L. GASPARD, Hessmer, La.

Thrifty Bees

We can make immediate shipment of package bees and queens.
Forty-seven years' experience assures you of the finest stock of THRIFTY three-banded Italian bees.
Our combless packages are guaranteed full weight. Safe arrival and satisfaction is guaranteed on both queens and package bees. We ship you young THRIFTY bees that build strong colonies. No deposit is required to reserve shipping date. Book your order now and be sure of the best delivery.

We give 15% discount to dealers and on orders for 100 or more packages or queens. We give 10% discount on orders for 15 to 100 packages or queens.

2-lb. package with queen	$2.45
3-lb. package with queen	3.15
Untested queen	.75

Remember, THRIFTY bees are guaranteed to please.

W. J. Forehand & Sons

Breeders Since 1892 Fort Deposit, Ala.

Three-Banded Italian Queens

Package Bees

Shasta Apiaries

Geo. W. Moore F. W. Chapman

Post Office: Shasta, Shasta Co., CALIFORNIA

MACK'S QUEENS

(They Speak for Themselves)

Big Hardy Northern-Bred Italian Queens that are guaranteed to make good, or MACK does. They produce powerful colonies that really bring in the honey. If your location demands Gentle bees—Back-lotters, take note—Mack's queens will furnish you hordes of the gentlest bees you ever saw. We will soon be starting our 24th season as a breeder and have the bees, the equipment and the knowledge to produce Queens that "Speak for Themselves". Every queen personally reared by Mack himself. No more package bees prior to May 20th. No deposit to book your order.

Queens till June 1st 75c each
2 lbs. bees and queen $2.50 3 lbs. $3.25

HERMAN McCONNELL
(The Bee & Honey Man)
Robinson Rte 2 Illinois

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

WAIT!

Why Look Further?

We have them! Leather-colored Italian Breeding Queens of Royal Blood and Her Subjects. Imported last season directly from Italy, so YOU can get a better honey producing bee, a gentle bee to work with, and a quiet bee through the swarming season.

Remember you get QUALITY when you order from the DIXIELAND at the same price.

2-lb. pkg. with selected queen	$2.45
3-lb. pkg. with selected queen	3.15
4-lb. pkg. with selected queen	3.85
Selected queen, each	.75

15% discount to Dealers.

Book your orders NOW and reserve your shipping date. Once we fill your order you will always be satisfied with our prompt service, full weight, low supersedure and safe arrival.

Over 11 years' experience.
You must be satisfied.

Dixieland Apiaries

Greenville, Alabama

XUM

Fresh from Our Yards

Shipped within 24 hours after receipt of your order.

Italian Bees and Queens

If you are in a rush we can make shipment the same day order is received. One extra queen with every 20 packages. No charge for clipping queens. Safe arrival guaranteed.

2-lb. package with queen, ..$2.45
3-lb. package with queen, .. 3.15
Young laying Queen, ... .75

15% discount to all customary.

For loose-queen packages, add 10c more per package. A laying queen is already introduced and loose among the bees. They act and start work like a natural swarm and will not supersede. No discount allowed on this type package.

Citronelle Bee Company
Citronelle, Alabama

Stoller's Thrifty Packages and Nuclei

Bred for honey production, absolutely no better package put out, packages and nuclei strong, baby bees, nuclei select combs, full frames brood. Absolutely the best nuclei put up in the South, by northern honey producing men who know what it means to be at the north end and pay their hard cash. Friend Producers, give us a trial and be convinced. This applies to either packages or nucs.

Packages

2-lb. size, $2.25 each, 3 lb. size $2.75 each, 25 or more, $2.65 each, 100 and up $2.50 each. Loose queens if desired. Nuclei, etc. Health Certificate with each shipment.

Truckloads of 800 or more delivered free by truck to your door. Guaranteed as represented or money refunded.

The Stoller Apiaries
Latty, Ohio **Sylvester, Ga.**

Hello Folks

Here We Are Again,

Stevenson's line bred GOLDENS

Some say Goldens are no Good. Their trouble is they have never had Goldens but some other yellow bee. We stand the test with the very best and win. Our being so gentle makes your work pleasant. We fill the hive, then swarm. The queens are large, uniform, strong and prolific. You won't go wrong if you heed our song and order from,

STEVENSONS APIARIES
Westwego, La.

Queens 75c.

1 to 9,	2-lb. with queen,	$2.45	3-lb.	$3.15
10 to 49,	2-lb. with queen,	2.25	3-lb.	2.90
50 to 99,	2-lb. with queen,	2.10	3-lb.	2.75
100 and over,	with queen,	2.00	3-lb.	2.65

To dealers and associations to 100, 15%; over, 20% on unit price.

"On the Spot"

Ready to fill your orders with genuine Mountain Gray bees and queens. Percent of orders booked to date exceeds last year. We solicit your orders based on our promise and our ability to serve efficiently and satisfactory, with full weight packages of young bees and well-bred young queens.

Prices: 2-lb. pkg. with queen, ...$2.45
3-lb. pkg. with queen, ... 3.15
Untested queen, ... .75
15% discount to dealers.

Catalog free. No disease.

Safe arrival guaranteed.

BOLLING BEE CO., Bolling, Ala.

Norman's Bright Italians Now Ready

Try JOHN A. NORMAN'S Pure 3-Band Italian Bees and Queens and BE SURE of getting Pure stock, prompt service, and entire satisfaction. I have the stock, equipment, and experience to furnish you with Hardy, Prolific, Disease-resisting and real Honey-gatherers. Pure mating, safe arrival and satisfaction guaranteed in U. S. and Canada. Packages shipped in light convenient cages well ventilated. Express Collect. State Health Certificate furnished. One Free Queen with every 20 packages ordered. No Discounts.

	1 to 49	50 or more
Unt. queens,	$ .50	$ .45
2 lb. pkg. and queen	1.75	1.70
3-lb. pkg. and queen,	2.25	2.20

John A. Norman
LaPine, Ala. **Rt. 2, Box 38.**

Garon Bee Company, Donaldsonville, La.

Package Bees and Queens--Three-banded Italians

Prices to May 10th (Below)			In Lots of	Prices after May 10th (Below)		
2-Lb. pkgs. with queen,	3-Lb. pkgs. with queen,	Queens.		2-Lb. pkgs. with queen,	3-lb. pkgs. with queen,	Queens.
$2.45	$3.15	$0.75	1- 25	$2.25	$2.95	$0.50
2.25	2.95	.70	26- 50	2.10	2.80	.45
2.10	2.80	.65	51- 75	2.00	2.70	.40
2.00	2.70	.62	76-100	1.95	2.65	.40
1.95	2.65	.60	101-500	1.91	2.45	.35
1.91	2.45	.58	501- up	1.75	2.30	.35
15% Discount allowed to Dealers on $2.45, $3.15 and 75c.				15% Discount allowed to Dealers on $2.25, $2.95 and 50c.		

We believe we give value for dollars received—

BECAUSE—The Queen is the Heart and Soul of the Colony. We have possibly given Queen Breeding more thought and put more effort towards improving our strain than most breeders and believe we have made sufficient progress to assure unusual performance in per colony honey production.

BECAUSE—Queen supersedure is a serious obstacle in the Package Bee Industry, we have established a research program to study causes of supersedure in our work for better bees.

BECAUSE—We produce Large Quantities of excellent bees. Book Conservatively. No delays to advance booked orders during the last four-year period. Save express charges with light containers. We give you a thoroughly valuable SERVICE.

Garon Bee Co., Donaldsonville, La.

Peterson's Package Bees, now Ready

ITALIAN OR CAUCASIAN

2-lb. with untested Queen, ...$2.45 3-lb. with untested Queen, ... 3.15
4-lb. with untested Queen, ... 3.85 5-lb. with untested Queen, ... 4.55

Safe delivery guaranteed. Hustling stock. Disease free.

HONEY BEE APIARIES, SANDWICH, ILL.

Have You a Fever?

Your fever thermometer eliminates all guesswork, eliminates all worry.
It is your protection.
What the thermometer is to the home

THE HONEY HYDROMETER

is to the beekeeper, or the honey buyer.
It is a protection and will save you dollars.
You know when honey is liable to ferment.
It guarantees a uniform product.

BUY A HYDROMETER

Guaranteed to register correctly. $8.50 Postpaid. No Discount.

The A. I. Root Company, Medina, Ohio

XUM

Three-banded Italian Bees and Queens

We know that our customers' success or failure at the end of the season decides whether we will receive your future patronage in bees and queens which is so vital to our existence as shippers of package bees and queens.

Having no other occupation for the past 18 years, and studying your needs from many angles, has, we believe, fitted us to give you quality and service unexcelled by any firm anywhere.

Being situated in the northern part of this state, we cannot supply your needs as early as some firms further South. But around April 10 to 12, we have always had a good supply of dependable queens, and the colonies in the out yards are full of emerging bees that have not worn themselves out storing honey.

Being nearer you, we can save you money on express charges. If you wish to truck your bees, we have this to say: You will have hard-surfaced roads all the way to Shannon. We invite you to come and bring your Inspector, and see a country where FB has never been known.

2-lb. pkg. with queen .....$2.45 3-lb. pkg. with queen $3.15

Queens, 75 cents each. Tested $1.50 for queenless pkgs., deduct price of queen. 5 queens allowed on each 100 pkgs.

15% discount to dealers.

SHAW & HOMAN, Shannon, Miss.

None Better than Herier's 3-band-Italian Package Bees and Queens

REMEMBER! Your package is no better than your queen. Outstanding colonies are headed with outstanding queens. We believe poor queens are superseded. Hence we specialize in breeding and shipping: Well-natured, Hardy, Prolific Queens; raised from stock that excels in: Honey production, Non-swarming, Gentleness and Size. Drones in our mating yard are as carefully selected as our Breeders.

Prompt Shipment—Full Weight Packages—Young Bees—No Drones—Safe arrival and Satisfaction Guaranteed.

Prices	Are	Right	
	2 lbs.		3 lbs.
1- 10	$2.45		$3.15
11- 25	2.30		3.00
26- 50	2.25		2.90
51-100	2.10		2.75
101-250	1.95		2.60
Queens	1- 25	$0.75	
	26-100	.70	
	101-	.68	

1 extra queen with each 25 queens or 25 packages.

Dealers and Associations 15% on base price. 10% on quantity prices.

Our Motto—
"Service-Satisfied Customers."

R. B. HERIER Valdosta, Ga.

Three-Banded Leather-Colored Italian Queens

Package Bees and Queens
Queens personally reared.
They are extremely good layers.
Bees gentle and great workers.

2-lb. pkgs. with queens,.....$2.45 ea.
3-lb. pkgs. with queens,..... 3.15 ea.
4-lb. pkgs. with queens,..... 3.85 ea.
15% discount to dealers, 22% discount if order amounts to 1000 or more pkgs.

May 10th or later.

2-lb. pkgs. with queens, ...$2.00 ea.
50 or more, ... 1.75 ea.
3-lb. pks. with queens, ...$2.50 ea.
50 or more, ... 2.25 ea.

We Guarantee—Over-weight in young bees, Light shipping cages, Good pure mated queens, Prompt shipment, No disease, Safe arrival and perfect satisfaction.

The Crowville Apiaries

J. J. Scott, Prop.

WINNSBORO LOUISIANA

Koolairy BEE Veil

Best yet, and most convenient to use. Postpaid $1.50.

"She-Suits-Me" Queens

Light-three-banded stock, line-bred for 25 years. None better. One queen 75 cents; 3 for $2.00 after May 31. Write for prices on quantity orders. Send for price list. Stamps accepted for single queen orders.

ALLEN LATHAM
Norwichtown, Conn.

Did you ever try the SAFIN cage for introducing your queens? 15c postpaid, 10 for $1.

The Koolairy veil when once used will always be used. It is the easiest to use, and most comfortable veil ever contrived.

BEES and QUEENS

3-Band Italians

Priced as low as they can be produced without sacrificing quality.

Packages with queens			Queens	
	2 lbs.	3 lbs.		
1 to 100	$2.00	$2.60	1 to 100	$0.65
Over 100	1.90	2.45	100 and up	.60

No discount on these prices.
For queenless packages deduct price of queens.

Highest quality, reliable service, full weight young bees and light crating.

Safe arrival and satisfaction guaranteed.

W. O. GIBBS
Brookfield, Ga.

Treat yourself to the best with

KNIGHT'S

Leather-Colored Italian

Bees and Queens

They are the best honey-gatherers, the best winterers and reasonably gentle.

2-lb. pkgs. including queen	$2.45
3-lb. pkgs. including queen	3.15
4-lb. pkgs. including queen	3.85
5-lb. pkgs. including queen	4.55

For queenless packages, deduct 75c
Write for delivered prices via parcel post.

QUEENS

Guaranteed mated pure, select, 75c. No charge for clipping.

15% discount to dealers. Full weight guaranteed with young bees.

JASPER KNIGHT
HAYNEVILLE, ALA.

Briefly Stated,

Caucasian Bees

become diseased less readily, are easy to handle, go far afield for nectar, fly when others quit, build up rapidly in Spring.

Two-pound packages of bees with Caucasian queens, $2.45 each; for larger size packages, add 70c for each additional pound of bees. Select untested queens, 75c each. For genuine Mountain gray Caucasian bees,

Caucasian Apiaries

Brooklyn, Alabama,

is the place to get them.

Reliable Service, Reliable Package Bees and Queens

Three Band Italian Bees and Queens

Price List, Via Express Collect

2-lb. package bees with select untested queen .....$2.45 each
3-lb. package bees with select untested queen .....$3.15 each
Select Untested Queens ..75c each
Select Tested Queens ..$1.50 each

Prices of package bees via mail quoted on request.

15% discount on the above prices will be allowed dealers on bees for re-sale.

Support the American Honey Institute.

W. E. HARRELL

HAYNEVILLE, ALABAMA

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